IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

NOVOZYMES A/S, **Plaintiff,** **v.** **GENENCOR INTERNATIONAL, INC. and ENZYME DEVELOPMENT CORPORATION,** **Defendants.**	**C.A. No. 05-160-KAJ**

DEFENDANTS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW REGARDING DAMAGES PHASE OF TRIAL

MORRIS, NICHOLS, ARSHT & TUNNELL LLP
Donald E. Reid (#1058)
Jason A. Cincilla (#4232)
1201 North Market Street, 18th Floor
Wilmington, DE 19899-1347
Telephone: 302.658.9200
Facsimile: 302.658.3989

Attorneys for Defendants
Genencor International, Inc. and
Enzyme Development Corporation

OF COUNSEL:

JONES DAY
Kenneth R. Adamo (*Pro Hac Vice*)
Tharan Gregory Lanier (*Pro Hac Vice*)
Jane L. Froyd (*Pro Hac Vice*)
2882 Sand Hill Road, Suite 240
Menlo Park, CA 94025

Thomas E. Friebel (*Pro Hac Vice*)
222 East 41st Street
New York, NY 10017-6702

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TABLE OF ABBREVIATIONS

For convenience and ease of reference, the following abbreviations are used in the brief.

ABBREVIATION	REFERS TO
'031 Patent	United States Patent No. 6,867,031, TE 100
'038 Patent	United States Patent No. 6,297,038 B1, TE 501
A5017:5-9	Appendix page 5017, lines 5-9
CL (Liability)	Conclusions of Law of August 24, 2006 regarding Liability Phase Trial
D.I.	Docket Item
FF (Liability)	Findings of Fact of August 24, 2006 regarding Liability Phase Trial
Genencor	Genencor International, Inc. and Enzyme Development Corporation, collectively
GCL	Genencor's Proposed Conclusions of Law
GFF	Genencor's Proposed Findings of Fact
Novozymes	Novozymes A/S
NZNA	Novozymes of North America, Inc.
Pl. Br. at 8	Novozymes' Opening Post-Trial Brief at page 8
Pl. FF 96	Novozymes' Proposed Findings of Fact number 96 (Damages)
Pl. CL 5	Novozymes' Proposed Conclusions of Law number 5 (Damages)
Uncontroverted Facts (Damages)	Updated Proposed Final Pretrial Order (Damages), Uncontroverted Facts Section
Uncontroverted Facts (Liability)	Updated Proposed Final Pretrial Order (Liability), Uncontroverted Facts Section

I. INTRODUCTION

Plaintiff Novozymes A/S ("Novozymes") brought this patent infringement action against Defendants Genencor International, Inc. and Enzyme Development Corporation (co llectively "Genencor"), accusing Genencor of infringing claims 1, 3 and 5 of U.S. Patent No. 6,867,031 (the "'031 Patent"). *See* Complaint, Docket Item ("D.I.") 1, A-1501–1542. Genencor denied infringement, and asserted that the '031 Patent is invalid as obvious and for lack of enablement, and that it is unenforceable due to inequitable conduct and prosecution laches. *See* Amended Answers, D.I. 89, A-1701–1720 and 90. Novozymes moved for a preliminary injunction, which this Court denied. *See* Memorandum Order, D.I. 68. The Court conducted a trial of the liability issues on March 10-13, 2006, and on August 24, 2006 issued an opinion finding that SPEZYME® Ethyl infringes the '031 Patent, and that the '031 Patent is valid and enforceable. Findings of Fact and Conclusions of Law, August 24, 2006, p. 64, A-10066. The Court conducted a bench trial of the damages and permanent injunction issues on October 10-12, 2006.

II. THE ISSUES

The issues to be decided by the Court are:

(1) Whether NZNA has standing to join this lawsuit as a co-plaintiff.

(2) Whether Novozymes is entitled to a permanent injunction under 35 U.S.C. § 283, enjoining Genencor from infringing claims 1, 3 and 5 of the '031 Patent, and from using, manufacturing, marketing, selling, distributing, importing or otherwise commercializing SPEZYME® Ethyl in the United States or otherwise inducing other parties to do the same.

(3) Whether Novozymes is entitled to damages 35 U.S.C. § 284 to compensate for infringement of the '031 Patent by Genencor, and, if so, the amount of damages to be awarded.

(4) Whether infringement by Genencor is willful, and if so, whether enhanced damages should be awarded to Novozymes pursuant to 35 U.S.C. § 284.

(5) Whether this should be considered an exceptional case under 35 U.S.C. § 285, and if so, whether Novozymes should be awarded its reasonable attorneys' fees.

III. PROPOSED FINDINGS OF FACT

A. The Named Parties

1. Plaintiff Novozymes A/S is a Danish corporation having a place of business at Krogshoejvej 36, DK-2880 Bagsvaerd, Denmark. *See* Complaint, D.I. 1 at ¶ 2, A-1501.

2. Defendant Genencor International, Inc. is a Delaware corporation having its principal place of business at 925 Page Mill Road, Palo Alto, California. *See* Complaint, D.I. 1 at ¶ 3, A-1501; Amended Answer, D.I. 89 at ¶ 3, A-1702.

3. Defendant Enzyme Development Corporation is a Delaware corporation having its principal place of business at 21 Penn Plaza, New York, New York. *See* Complaint, D.I. 1 at ¶ 4, A-1502; Amended Answer, D.I. 90 at ¶ 4. EDC is a United States distributor for Genencor's SPEZYME® Ethyl products. *See* Updated Proposed Final Pretrial Order (Liability), D.I. 101, section III ("Uncontroverted Facts (Liability)") at ¶ W, A-1144.

B. Novozymes North America

4. NZNA is an indirect wholly owned United States subsidiary of Novozymes. *See* Updated Proposed Final Pretrial Order (Damages), D.I. 194, section III ("Uncontroverted Facts (Damages)") at ¶ E, A-14503.[1] It was formed long before the '031 Patent issued in 2005, and was not formed to practice the '031 Patent. *See* TE 741 at 4, A-16833.

5. Novozymes and NZNA are separate legal entities that have an "arms length" relationship. *See* Loft, Tr. (D) 64:25-66:12, A-15063:25–15064:12, 68:1-4, A-15067:1-4. Novozymes and NZNA maintain this separate corporate status for beneficial financial purposes, such as reduced tax payments in the United States. *See* Meyer, Tr. (D) 36:8-24, A-15035:8-24; Loft, Tr. (D) 64:25-66:12, A-15063:25–15064:2, 68:6-14, A-15067:6-14, 84:1-5, A-15083:1-5. NZNA pays its own expenses from checks written in the United States from U.S. banks. *See* Loft, Tr. (D) 76:20-77:7, A-15075:20–15076:7. NZNA has independent responsibility to ensure

[1] Novozymes' motion to add NZNA as a co-plaintiff was denied without prejudice. *See* D.I. 178. Novozymes renewed its motion at trial and in its opening post-trial papers.

it is in compliance with U.S. law, such as U.S. tax laws, including filing tax returns and paying U.S. taxes. *See* Loft., Tr. (D) 56:15-22, A-15055:15-22, 73:4-16, A-15072:4-16.

6. On January 1, 1996, the predecessor in interest to Novozymes and the predecessor in interest to NZNA entered into the Technology License Agreement ("TLA"), which gives NZNA a "non-exclusive non-transferable right and license, without right to sublicense, to use the Technology in the process of producing enzymes, including finished products and concentrates, and to make and use apparatus and machinery of implementing and maintaining that process." *See* Meyer, Tr. (D) 25:16-27:7, A-15024:16–15026:7; Olofson, Tr. (D) 177:6-177:24, A-15176:6-24; TE 240 at 16028, A-16033. The TLA also includes a covenant not to sue "under any patent that may issue in the United States to [Novozymes] and which claims all or any portion of the Technology." *Id.* The TLA does not grant any right to exclude others from making, using or selling the Technology.

7. Novozymes created the TLA for the purpose of providing a formal agreement by which NZNA could lawfully make use of Novozymes' technology and for the purpose of allocating taxes between the U.S. and Denmark. *See* Meyer, Tr. (D) 36:8-24, A-15035:8-24; Olofson, Tr. (D) 168:13-169:5, A-15167:13–15168:5; TE 220, A-16028–A-16033. In structuring this contract, Novozymes chose to treat NZNA as a separate, third-party (*i.e.*, maintaining the "arms length" relationship between Novozymes and NZNA). *See* Loft, Tr. (D) 64:25-66:12, A-15063:25–15064:12, 68:6-14, A-15067:6-14.

8. In exchange for use of Novozymes' Technology, NZNA must pay Novozymes a "running royalty based on the gross sales less (a) all discounts and rebates that apply directly to the sale including cash discounts; and (b) credits or allowances given for rejection or return of goods previously sold. The royalty rate shall be 40% of net sales." *See* TE 240 at NV-D-0174024, A-16033. This 40% royalty rate directly resulted from negotiations between Novozymes and the U.S. and Danish tax authorities. *See* Loft, Tr. (D) 75:21-76:1, A-15074:21–15075:1, 77:8-19, A-15076:8-19, 78:9-79:23, A-15077:9–15078:23, 80:11-14, A-15079:11-14;

Olofson, Tr. (D) 169:13-170:2, A-15168:13–15169:2; TE 740, A-16722–A-16829. These negotiations are memorialized in the advanced pricing agreement ("APA") between the Department of Treasury of the United States Internal Revenue Service and NZNA. *See* Loft, Tr. (D) 78:7-80:14, A-15077:7–15079:14; Olofson, Tr. (D) 170:6-10, A-15169:6-10; TE 455, A-16236–A-16549; TE 740, A-16722–A-16829.

9. The parties do not dispute that the TLA expressly gives NZNA the non-exclusive right to use technology covered by the '031 Patent. *See* TE 240, A-16028–A-16033. It is the agreement that provides the "legal structure" for the relationship between Novozymes and NZNA concerning the technology covered under the '031 Patent. *See* Meyer, Tr. (D) 27:16-28:5, A-15026:16–15027:5 (stating that the TLA "allows the North American organization to operate and sell [and] produce products"), 35:6-16, A-15034:6-16, 44:10-15, A-15043:10-15. Novozymes, however, owns the '031 Patent and it maintains complete control over the patent. *See* Meyer, Tr. (D) 11:19-25, A-15010:19-25, 18:14-16, A-15017:14-16.

10. Novozymes admits the TLA states that it is "non-exclusive," that "it would be wrong to state it is an exclusive license," and that it is purposefully non-exclusive so as to anticipate instances in which Novozymes wishes to give rights to the Technology to entities in addition to NZNA. Meyer, Tr. (D) 30:10-31:11, A-15029:10–15030:11, 38:9-39:6, A-15037:9–15038:6, 45:8-46:5, A-15044:8–15045:5. In fact, Novozymes has licensed the Technology covered under the TLA, even some of the Technology it refers to as "core technology," to parties other than NZNA. *See* Meyer, Tr. (D) 46:17-47:25, A-15045:17–15046:25.

11. Neither the TLA nor any other agreement conveys any ownership interest in Novozymes' technology to NZNA. *See* Meyer, Tr. (D) 19:7-22, A-15018:7-22. Further, NZNA does not have any authority to grant licenses in Novozymes' technology to third parties; Novozymes' witness Mr. Henrik Meyer testified that such decisions "will always be governed by Novozymes." Meyer, Tr. (D) 49:19-24, A-15048:19-24.

C. Novozymes and the Technology of the '031 Patent

12. Novozymes has never manufactured or sold any products that practice the '031 Patent. *See* TE 741 at 8, A-16837; Olofson, Tr. (D) 176:13-177:1, A-15175:13–15176:1.

13. While the TLA grants NZNA a non-exclusive right to use the technology of the '031 Patent, Novozymes receives no compensation under the TLA for including the '031 Patent in that non-exclusive license, because the license only provides for royalty payments on products that make use of the licensed technology, and no product practices the technology of the '031 Patent. *See* Olofson, Tr. (D) 176:13-16, A-15175:13-16; TE 240, A-16028–A-16033.

D. Alpha-Amylase Products and Competition in the U.S. Dry Mill Fuel Ethanol Market

14. The Genencor product at issue in this case, SPEZYME® Ethyl, is an alpha-amylase enzyme that was sold into the "dry mill" fuel ethanol industry. *See* Faller, Tr. (D) 110:10-19, A-15109:10-19; Uncontroverted Facts (Damages) at ¶¶ E, M, A-14503-A-14504. Novozymes itself does not manufacture or sell products that compete with SPEZYME® Ethyl. *See* TE 741 at 8, A-16837. Rather, its subsidiary, NZNA, manufactures and sells alpha-amylase products under several variations of the tradename "Liquozyme®", including Liquozyme® SC, Liquozyme® DS and Liquozyme® NX (collectively, the "Liquozyme Products"). *See* Uncontroverted Facts (Damages) at ¶ J, A-14503.

15. NZNA is presently the only manufacturer and distributor of the Liquozyme Products in the United States. Liquozyme® SC has competed with Genencor's SPEZYME® Ethyl in the U.S. fuel ethanol market since April of 2004. *See* Uncontroverted Facts (Damages) at ¶¶ F-H, A-14503. None of the Liquozyme Products practice the '031 Patent. *See id.*

16. The demands placed on these alpha-amylase products derive from the larger U.S. dry mill fuel ethanol industry. This industry has grown and changed from 1999 through 2005 and 2006. In 1999, there were approximately 30 dry mill fuel ethanol plants in the United States, but by March 2005 there were 77, and by 2006 there were 103-105. *See* Faller, Tr. (D) 113:21-114:6,

A-15112:21–15113:6, 126:23-127:18, A-15125:23–15126:18. The fuel ethanol market and political climate surrounding fuel ethanol has also changed during that time. *See* Davis, Tr. (D) 314:14 -315:1, A-15314:14–15315:1; TE 353, A-16175.

17. The industry demands products that function under a variety of circumstances. Each fuel ethanol plant has its own unique processes. *See* Beto, Tr. (D) 416:15- 417:4, A-15416:15–15417:4; Crabb, Tr. (D) 365:5-13, A-15365:5-13; TE 687 at NV-D-0126379, A-16654. Due to their distinct processes, each fuel ethanol plant has different needs, including different performance requirements—such as pH and temperature ranges—for enzymes including alpha-amylases. *See* Beto, Tr. (D) 416:15- 417:4, A-15416:15–15417:4; Crabb, Tr. (L) 34:11-17, A-5034:11-17; Crabb, Tr. (D) 365:5-13, A-15365:5-13. Because an enzyme may be successful in some plants but not others, before a plant will use its own money to purchase a new enzyme to use in fuel ethanol production, the plant will run a "plant trial" of the enzyme, during which the new enzyme is placed into the plant's application for a period of time up to several weeks. *See* Beto, Tr. (D) 200:7-19, A-15199:7-19; Faller, Tr. (D) 112:1-14, A-15111:1-14. During this time, the plant monitors the parameters of the enzyme and/or the performance of the plant while using the enzyme, and may even switch back to the previous product to analyze a before-and-after comparison of the two products. *See id.*

18. In addition to technical demands, the structure of the dry mill fuel ethanol industry impacts pricing of the relevant alpha-amylases. Some enzyme customers in this market join together to pool their purchase of enzymes into large purchase commitments in order to increase their power to negotiate better prices. *See* Faller, Tr. (D) 114:7-20, A-15113:7-20.

19. Demand for alpha-amylase products is further influenced by demand for the ultimate product these alpha-amylases are used to create, fuel ethanol. Fuel ethanol may be used to power automobiles by mixing it into gasoline. *See* TE 353, A-16175. In the United States, there is public demand for less reliance on oil from the Mideast, which is leading to increased public support for use of biofuels, including fuel ethanol. *See* TE 353, A-16175. Environmental

concerns also support the importance of biofuels. *See* TE 353, A-16177. U.S. policymakers recognize the importance of fuel ethanol and mandate nationwide use of ethanol in gasoline. *See* TE 353, A-16175.

(1) Alpha-Amylase Products and Competition Before SPEZYME® Ethyl

20. Genencor has continuously marketed and sold to the U.S. dry mill fuel ethanol industry other alpha-amylase products, known at SPEZYME® Fred, SPEZYME® Fred L and SPEZYME® HPA, since prior to the launch of SPEZYME® Ethyl. *See* Faller, Tr. (D) 137:15-21, A-15136:15-21. Another alpha-amylase product that Genencor marketed and sold to the same industry prior to the launch of SPEZYME® Ethyl was called G997. *See* Faller, Tr. (D) 88:3-15, A-15087:3-15, 91:19-24, A-15090:19-24. This alpha-amylase was a wild type *Bacillus stearothermophilus* alpha-amylase. *See* FF (Liability) 61, A-10024–10025; Faller, Tr. (D) 92:22-24, A-15091:22-24. This Court found that G997 "contains a 29 amino acid deletion at the C-terminus." FF (Liability) 67, A-10027, 69, A-10027. Some customers preferred these other Genencor products to NZNA's Liquozyme Products and chose to purchase them over the Liquozyme Products. *See* Faller, Tr. (D) 137:15-21, A-15136:15-21. In fact, at least one customer switched from using the Liquozyme Products to using SPEZYME® Fred. *See* Faller, Tr. (D) 111:14-25, A-15110:14-25, 113:16-18, A-15112:16-18.

21. Price declines are a regular part of the alpha-amylase business. *See* Faller, Tr. (D) 155:7-9, A-15154:7-9. Prices for the Liquozyme Products had declined even before SPEZYME® Ethyl or other new products entered the market. *See* Faller, Tr. (D) 155:1-9, A-15154:1-9. NZNA's customers were critical drivers of price declines. *See* Faller, Tr. (D) 155:10-13, A-15154:10-13. Buying groups have also imposed price pressures on the alpha-amylase market, even before SPEZYME® Ethyl came onto the market. *See* Faller, Tr. (D) 155:14-19, A-15154:14-19.

(2) Alpha-Amylase Products and Legal Competition Between April 2004 and March 15, 2005

22. SPEZYME® Ethyl legally entered the market by April 2004. *See* FF (Liability) 57, A-10023. The '031 Patent did not issue until March 15, 2005. *See* TE 100, A-7001–7040. Thus, SPEZYME® Ethyl legally competed in the marketplace for almost a year, between April 2004 and March 15, 2005.

23. When SPEZYME® Ethyl legally entered the market, large numbers of customers chose to switch from Novozymes' Liquozyme Products to Genencor's SPEZYME® Ethyl. *See* Faller, Tr. (D) 103:2-105:1, A-15102:2–15104:1. Some customers chose to continue purchasing Genencor's other alpha-amylase products, including SPEZYME® Fred and SPEZYME® HPA, during this time. *See* Faller, Tr. (D) 108:15-109:11, A-15107:15–15108:11. Even Novozymes recognized that one of Genencor's strengths was its diverse "liquefaction," or alpha-amylase, product line. *See* Faller, Tr. (D) 139:16-140:15, A-15138:16–15139:15, 148:13 -149:6, A-15147:13–15148:6; TE 353, A-16134–16185.

24. When customers choose an alpha-amylase product, the final decision is not always based on technical product details, rather customers choose to purchase alpha-amylase products from Genencor for many non-technical reasons. For example, a customer's relationship to a supplier is important to the customer's purchasing decisions. *See* Faller, Tr. (D) 132:20-134:7, A-15131:20–15133:7. Not only did NZNA lack relationships with some customers, its own behavior, including exclusive technology agreements, angered some customers to the point of "refus[ing] to do business with a company that conducts itself like Novozymes." TE 692; A-16673; *see also* Faller, Tr. (D) 149:25-150:12, A-15148:25–15149:12, 152:24-153:25, A-15151:24–15152:25; TE 692, A-16673. Novozymes also admitted that customers perceived it "as arrogant and a bully." TE 699, A-16703. Further, Novozymes also recognized that its "close relationship with Broin is a liability as viewed from other customers." TE 353, A-16139; *see also* Faller, Tr. (D) 142:3-144:5, A-15141:3–15143:5, 146:4-148:12, A-15145:4–15147:12.

Customers also valued the proximity of Genencor's production facilities to their plants. *See* Faller, Tr. (D) 140:13-141:14, A-15139:13–15140:4, 142:3-23, A-15141:3-23.

25. However, during the time SPEZYME® Ethyl was on the market Novozymes' sales went up and it actually won back some of the business it had initially lost to Genencor when SPEZYME® Ethyl launched. *See* Faller, Tr. (D) 156:7-25, A-15155:7-25.

(3) Alpha-Amylase Products and Competition During the Accounting Period

(a) *Genencor's available substitutes during accounting period*

26. An enzyme (such as the alpha-amylase enzymes that make up SPEZYME® Ethyl and SPEZYME® XTRA) is produced by adding a piece of DNA known as a gene encoding the enzyme into an expression system, which uses the gene as a template to produce the enzyme. *See* Crabb, Tr. (D) 374:9-376:7, A-15374:9–15376:7; TE 228 at 6, ¶ 15, A-16006. Genencor had both the gene encoding the SPEZYME® XTRA enzyme and the expression system to produce the enzyme well before the launch of the '031 Patent. *See* Crabb, Tr. (D) 371:18-20, A-15371:18-20, 374:9-376:7, A-15374:9–15376:7, 399:19-400:3, A-15399:19–15400:3, 401:7-12, A-15401:7-12. Specifically, Genencor marketed the G997 product prior to the introduction of SPEZYME® Ethyl. *See* Faller, Tr. (D) 88:3-15, A-15087:3-15, 91:19-24, A-15090:19-24. This alpha-amylase was a wild type *Bacillus stearothermophilus* alpha-amylase. *See* FF (Liability) 61, A-10024–10025; Faller, Tr. (D) 92:22-24, A-15091:21-22. This Court has previously found that G997 "contains a 29 amino acid deletion at the C-terminus." FF (Liability) 67, A-10067, 69, A-10028. SPEZYME® XTRA is also composed of an alpha-amylase enzyme that is "identical to the wild type [*Bacillus stearothermophilus* alpha-amylase] in all respects with the exception that it is lacking the last 29 amino acids at the C terminal end of the molecule." Crabb, Tr. (D) 399:23-400:3, A-15399:23–15400:3.

27. Further, Genencor has had the ultimate source of the gene, the wild type *Bacillus stearothermophilus,* for an even longer time period. Genencor initially obtained it as early as

1986, and also acquired a wild type *Bacillus stearothermophilus* alpha-amylase construct from Enzyme Bio-Systems ("EBS") (which Genencor later acquired) at the same time it acquired the construct that led to SPEZYME® Ethyl, around 2002. *See* Crabb, Tr. (D) 371:18-20, A-15371:18-20; TE 228 at 4 ¶11, A-16004–16005. Genencor knew how to construct the desired 29 amino acid truncation of the alpha-amylase gene from this wild type *Bacillus stearothermophilus* prior to the issuance of the '031 Patent. *See* Crabb, Tr. (D) 402:18-20, A-5402:18-20; TE 194, A-8517–A-8528.

28. In fact, Genencor had all of the know how to design SPEZYME® XTRA throughout the accounting period. This Court's own findings demonstrate that Genencor had knowledge of the technical design of SPEZYME® XTRA at the beginning of the accounting period, as they demonstrate that Genencor had marketed another product with the same alpha-amylase technology prior to that time. *See* FF (Liability) 61, A-10024–10025, 67, A-10027, 69, A-10028; Faller, Tr. (D) 92:22-24, A-15091:22-24. Further, Genencor knew the thermostabilty properties of wild type *Bacillus stearothermophilus* alpha-amylases, because it had marketed G997, also a wild type *Bacillus stearothermophilus* alpha-amylase. *See* Crabb, Tr. (D) 402:18-20, A-15402:18-20. Genencor also knew about the 29 amino acid deletion at the C terminus of an alpha-amylase gene prior to March of 2005, and had even engineered that deletion into a version of its SPEZYME® Ethyl product that was first sold on August 7, 2005. *See* TE 194, A-8517–A-8528.

29. Likewise, Genencor had the host expression system that is used to produce the alpha-amylase enzyme now sold as SPEZYME® XTRA, known as the "licheniformis expression system," prior to March of 2005. *See* Crabb, Tr. (D) 399:19-400:3, A-15399:19–15400:3, 401:7-12, A-15401:7-12. Genencor not only had this licheniformis expression system prior to the start of the accounting period, but it had already successfully used this system to produce SPEZYME® Ethyl, also a *Bacillus stearothermophilus* alpha-amylase enzyme, prior to the issuance of the '031 Patent. *See* FF (Liability) 57, A-10023; TE 194, A-8517–A-8528.

30. The sole reason that Genencor did not create and market SPEZYME® XTRA earlier was that SPEZYME® XTRA had a lower profit margin than SPEZYME® Ethyl and Genencor "reasonably believed it had a noninfringing product," in SPEZYME® Ethyl. *See* Crabb, Tr. (D) 205:9-11, A-15204:9-11, 402:4-17, A-15402:4-17. There were no technical reasons preventing Genencor from developing SPEZYME® XTRA in March 2005. *See* Crabb, Tr. (D) 402:18-20, A-15402:18-20. Similarly, while not as profitable as SPEZYME® Ethyl, SPEZYME® XTRA is profitable for Genencor. *See* TE 483 at 15, A-16624.

31. Customer behavior has shown that customers did not demand the exact features claimed in the '031 Patent, but rather demanded a type of alpha-amylase product for which the patented product is just one exemplar. *See* FF (Liability) 15, A-10008. That is, customers required alpha-amylases that were effective under a variety of conditions, such as specific temperatures and pHs, not the specific deletion of the '031 Patent, as seen by customer behavior after SPEZYME® Ethyl was pulled from the market. *See* Crabb, Tr. (D) 365:5-13, A-15365:5-13; Beto, Tr. (D) 416:10-22, A-15416:10-22, 422:20-425:17, A-15422:20–15425:17.

32. NZNA would not have gotten 100% of SPEZYME® Ethyl sales in the "but for world." In fact, there is no evidence that it would have received more than 10% of such sales. *See* Beto, Tr. (D) 425:9-17, A-15425:9-17.

(b) *Customers' preferences*

33. During the entire time SPEZYME® Ethyl was on the market, some customers actually preferred Genencor's other alpha-amylase products, including SPEZYME® Fred, SPEZYME® Fred L and SPEZYME® HPA, to both SPEZYME® Ethyl and the Liquozyme Products. *See* Faller, Tr. (D) 136:1-137:14, A-15135:1–15136:14; TE 687, A-16650–16671. Additionally, Genencor sold a new product, SPEZYME® XTRA, for the first time in June of 2006, while SPEZYME® Ethyl was still on the market. *See* Beto, Tr. (D) 195:12-15, A-15194:12-15. Plant trials for SPEZYME® XTRA, on which the June 2006 sale was based, occurred in the April or May time frame of 2006. *See* Beto, Tr. (D) 196:5-8, A-15195:5-8.

34. Around April 2006, Novozymes opined about the amount of business it was likely to gain should SPEZYME® Ethyl be taken off the market. *See* Faller, Tr. (D) 120:10-124:10, A-15119:10–15123:10; TE 687 at NVD0126379-80, A-16654–16655. This opinion was based on discussions with sales managers who had the most contact with the dry mill fuel ethanol plants, and was prepared for the production and sales team in order to develop a plan that Novozymes would undertake should SPEZYME® Ethyl be removed from the market. *See* Faller, Tr. (D) 120:10-124:10, A-15119:10–15123:10, 132:1-19, A-15131:1-19; TE 687 at NVD0126379-80. This projection did not consider Genencor's alpha-amylase product called SPEZYME® XTRA, but only considered alpha-amylase products Genencor had marketed prior to SPEZYME® Ethyl. *See* Faller, Tr. (D) 135:15-25, A-15134:15-25; TE 687, A-16650–16671. Even without considering SPEZYME® XTRA, Novozymes recognized that it would not capture all of the SPEZYME® Ethyl sales if SPEZYME® Ethyl were pulled from the market. *See* Faller, Tr. (D) 132:20-133:19, A-15131:20–15132:19, 135:15-25, A-15134:15-25; TE 687, A-16650–16671.

(c) ***NZNA's sales and prices***

35. Prices for the Liquozyme Products had declined even before SPEZYME® Ethyl or other new products entered the market. *See* Faller, Tr. (D) 155:1-9, A-15154:1-9. Prices for the Liquozyme Products declined when SPEZYME® Ethyl legally competed on the market before the '031 Patent issued. *See* Davis, Tr. 295:4-297:9, A-15295:4–15297:9; TE 492A, A-16646. Prices for the Liquozyme Products declined further, at a higher rate, after the '031 Patent issued. *See id.* Price elasticity during the relevant period could not have been zero. *See* Davis, Tr. (D) 547:3-19, A-155473:3-19; Teece, Tr. (D) at 451:12-22, A-15451:12-22.

(4) Alpha-Amylase Products and Competition After SPEZYME® Ethyl

36. Genencor announced that it would pull SPEZYME® Ethyl from the market on August 25, 2006, in response to this Court's liability decision, which issued on the previous day.

Uncontroverted Facts (Damages) at ¶ C, A-14502. Since this date, Genencor has not manufactured SPEZYME® Ethyl in the United States, imported SPEZYME® Ethyl into the United States, or exported SPEZYME® Ethyl from the United States. *See* Beto, Tr. (D) 420:20-421:11, A-15420:20–15421:11.

37. From the time that SPEZYME® Ethyl was removed from the market, approximately 76% of former SPEZYME® Ethyl customers have purchased an alternate alpha-amylase product from Genencor (SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA or SPEZYME® XTRA); 14% of former SPEZYME® Ethyl customers are in the process of testing products; and only 10% responded to the loss of SPEZYME® Ethyl by purchasing an alpha-amylase product from NZNA. *See* Beto, Tr. (D) 425:9-17, A-15425:9-17. All four of Genencor's non-infringing substitutes have been purchased by former SPEZYME® Ethyl customers as replacements for SPEZYME® Ethyl, including SPEZYME® Fred L (Beto, Tr. (D) 418:4-24, A-15418:4-24), SPEZYME® Fred (Beto, Tr. (D) 422:23-25, A-15422:23-25), SPEZYME® HPA (Beto, Tr. (D) 423:1-17, A-15423:1-17) and SPEZYME® XTRA (Beto, Tr. (D) 422:20-22, A-15422:20-22, 423:4-13, A-15423:4-13, 424:12-14, A-15424:12-14). Each of these purchases represent a customer paying money to purchase the given alpha-amylase for purposes other than plant trials. *See* Beto, Tr. (D) 427:5-11, A-15427:5-11. No customer who had been contractually obligated to purchase SPEZYME® Ethyl when the product was pulled was required by contract to switch to a different Genencor alpha-amylase product. *See* Beto, Tr. (D) 427:19-428:5, A-15427:19–15428:5.

38. Novozymes has made no allegation that SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA or SPEZYME® XTRA infringe any Novozymes' patent. SPEZYME® Fred is derived from the alpha-amylase isolated from the organism *Bacillus* ***licheniformis*** rather than the *Bacillus stearothermophilus* organism claimed in the '031 Patent, and does not contain any specifically engineered deletions as claimed by the '031 Patent. *See* Crabb, Tr. (D) 367:2-9, A-15367:2-9; TE 721, A-16716–A-16717. Likewise, SPEZYME® Fred L is derived from the

organism *Bacillus* ***licheniformis*** and does not contain any specifically engineered deletions. *See* Crabb, Tr. (D) 368:6-12, A-15368:6-12; TE 722 A-16718–A-16719. Similarly, SPEZYME® HPA contains an alpha-amylase derived from the *Bacillus* ***licheniformis*** organism and does not contain any specifically engineered deletions. *See* Crabb, Tr. (D) 370:7-20, A-15370:7-20; TE 723, A-16720–A-16721. While SPEZYME® XTRA is derived from *Bacillus stearothermophilus*, it does not contain any specifically engineered deletions as required by the '031 Patent, and thus could not infringe this patent. *See* Crabb, Tr. (D) 400:21-401:6, A-15400:21–15401:6.

39. Novozymes is likely to raise the price of the Liquozymes Products if SPEZYME® Ethyl is permanently taken off the market. *See* LeFebvre, Tr. (L) 622:12-24, A-6030:12-24; Faller, Tr. (D) 158:7-14, A-1517:7-14. Such price increases will likely lead to higher prices for fuel ethanol, something that would be at odds with the public interest of reducing U.S. reliance on foreign oil and increasing environmental protection. *See* TE 353, A-16175, A-16177.

E. Patent Licensing By/Between the Parties

40. Novozymes' predecessor in interest, Novo Nordisk A/S, entered into a patent license with Genencor in the field of pharmaceuticals known as the Filamentous Fungi License Agreement. *See* TE 339 at 16120, A-16133. The royalty rate established in this license is between 5% and 8%, and is based on "typical royalty rates for comparable products in comparable markets." *See id.*

F. Patent Licensing in Relevant Industries

41. As part of his reasonable royalty calculation, Dr. Teece considered royalty agreements in comparable fields as well as industry level ranges, as "a check on whether or not the basic methodologies and findings [of his reasonable royalty calculation] are correct." *See* Teece, Tr. (D) 469:16-20, A-15469:16-20, 470:16-19, A-15470:16-19.

42. The other sources Dr. Teece considered included: (1) numerous license agreements that each side offered into evidence, which had royalty rates varying from 0% up to

4%;[2] (2) the deposition of Novozymes' employee Marianne Nonboe, which noted that the highest royalty rate in a Novozymes' outlicense was 8%; (3) a recent study by Mark Lemley of Stanford University and Robert Shapiro of the University of California, Berkeley that looks at adjudicated royalty rates, broken down by industry, which notes that in the biotechnology industry, the royalty rate was 9.6% and in the chemistry industry, it was 11.98%; (4) information gathered from the Licensing Economic Review, a 20+ year old publication that "endeavors to present to practitioners information on royalty rates....", which stated that the overall industry average was a 6.7% royalty, with a 4.7% royalty for the chemicals industry, a 5.0% royalty for energy & environment, 4.0% for food processing and 7.5% for pharmaceutical & biotechnology; and (5) a commissioned report from the "Royalty Source" database, with a request to look at catalyst related technologies in the chemical industry, which stated that royalties in this industry ranged from 1.0% to 8.0%. *See* Teece, Tr. (D) 485:22-486:8, A-15485:22–15486:8, 486:9-487:6, A-15486:9–15487:6, 489:5-12, A-15489:5-12, 490:8-25, A-15490:8-25; TE 771, A-16870.

G. Genencor's Response to the '031 Patent

43. Genencor's development work leading up to SPEZYME® Ethyl started at least as early as 2002, well before issuance of the '031 Patent or allowance of the asserted claims. *See* Crabb, Tr. (L) 31:24-32:5, A-5031:24–A-5032:5; Crabb, Tr. (D) 376:18-377:14, A-15376:18–15477:14; TE 115, A-8233–8238; TE 228, A-16009–A-16011. Genencor made the deletions at the relevant RG positions based on the teachings of Suzuki. *See* Crabb, Tr. (L) at 40:11-41:7, A-5040:11–A-5041:7; TE 228, A-16009–A-16011. Dr. Crabb explained that Suzuki's teachings provided Genencor with the impetus to make the 179-180 deletion in a *Bacillus stearothermophilus* alpha-amylase. *See id.*

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[2] License agreements between Novozymes and Procter & Gamble, as well as licenses within settlement agreements, are referenced by Novozymes' witness Henrik Meyer. *See* Meyer, Tr. (D) 46:17-47:25, A-15045:17–15046:25.

44. Genencor began lawfully selling SPEZYME® Ethyl nearly a year prior to the March 15, 2005 issuance of the '031 Patent, before the asserted claims were allowed, and even before those claims were presented to the PTO. *See* Uncontroverted Facts (Liability) at ¶ X, A-1144; Garbell, Tr. (L) 428:3-6, A-5659:3-6; Borchert, Tr. (L) 380:13-381:6, A-5611:13–A-5612:6; TE 101 at 758-59, A-7798–7799. At that time, Genencor did not believe that SPEZYME® Ethyl might infringe a valid patent. *See* Crabb, Tr. (D) 389:18-24, A-15389:18-24. Had Genencor thought SPEZYME® Ethyl infringed a valid patent, it would not have launched SPEZYME® Ethyl and would have instead developed alternative products. *See id.*

45. Genencor did not become aware of the issued claims in the '031 Patent until September 29, 2004, when Genencor received a letter from Novozymes providing a copy of the allowed claims that eventually issued in the '031 Patent. *See* Uncontroverted Facts (Damages) at ¶ A, A-14502.

46. At that time, Genencor believed that the Suzuki prior art reference rendered the '031 Patent obvious. Genencor understood that SPEZYME® Ethyl was "genetically modified to have the two amino acids at the positions defined by Suzuki deleted." *See* Crabb, Tr. (D) 383:7-10, A-15383:7-10, 385:21-25, A-15385:21-25; TE 228, A-16000–A-16015. Dr. Crabb testified that Genencor believed "from a scientific standpoint, anyone that has read that paper [Suzuki] would choose to make those deletions if they wanted to try and improve the thermostability of *bacillus stearothermophilus*." *See* Crabb, Tr. (L) 41:4-7, A-5041:4-7; TE 115, A-8233–A-8238.

47. Genencor's understanding that the Suzuki prior art reference rendered the '031 Patent obvious was supported by a non-infringement opinion from outside counsel relating to another Novozymes patent, the '038 Patent. *See* Crabb, Tr. (D) 216:19-217:11, A-15215:19–15216:11. Genencor's patent counsel issued an opinion ultimately determining that "the deletions in SPEZYME® Ethyl did not infringe the '038 Patent" because the '038 Patent had no

claims that were identical to the deletions described by Suzuki. *See* Crabb, Tr. (D) 218:20-24, A-15217:20-24, 219:19-25, A-15218:19-25, 385:21-25, A-15385:21-25.

48. Genencor's belief that the Suzuki reference rendered the '031 Patent obvious was reinforced upon learning of another prior art reference, "Machius '95" ("Crystal Structure of Calcium-depleted *Bacillus licheniformis* α-amylase at 2.2 Å Resolution," by Mischa Machius, George Wiegand and Robert Huber, published in the Journal of Molecular Biology, volume 246, pages 545-559). *See* TE 173, A-8375–A-8390. The addition of the Machius '95 reference, and the acknowledgement that the Suzuki region is in a loop, provided even greater motivation for a scientist to make the two deletions found in SPEZYME® Ethyl. Dr. Machius himself testified that after his paper, he considered "making the deletion a no brainer." *See* Machius, Tr. (L) 774:3-22, A-6562:3-22.

IV. CONCLUSIONS OF LAW

A. NZNA Should Not Be a Co-Plaintiff and Novozymes May Not Recover NZNA's Lost Profits

(1) Governing Law

1. "Standing to sue is a threshold requirement in every federal action." *See Sicom Sys. Ltd. v. Agilent Techs., Inc.*, 427 F.3d 971, 975 (Fed. Cir. 2005); *Pfizer Inc. v. Elan Pharm. Research Corp.*, 812 F. Supp. 1352, 1356 (D. Del. 1993). "The party bringing the action bears the burden of establishing that it has standing." *See Sicom Sys.*, 427 F.3d at 976; *Pfizer*, 812 F. Supp. at 1356.

2. The standing requirement is both constitutional and statutory. The constitutional requirement of standing emanates from Article III of the United States Constitution, which states that federal courts may only adjudicate cases or controversies. *See Allen v. Wright*, 468 U.S. 737, 750-51 (1984). Constitutional standing requires only that the plaintiff have suffered an injury in fact, that there be a causal connection between the injury and the defendant's conduct, and that

the injury be redressable by a favorable court decision. *See Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992).

3. Standing to sue for patent infringement is specifically controlled by the Patent Act, which provides that a "patentee shall have remedy by civil action for infringement of [its] patent." 35 U.S.C. § 281. Generally, only a patentee or an assignee has standing to bring a patent infringement suit. *See id.*; *Abbott Labs. v. Diamedix Corp.*, 47 F.3d 1128, 1130 (Fed. Cir. 1995). Title 35 defines "patentee" as the party "to whom the patent was issued" or "any successors in title" to the patent. *See* 35 U.S.C. § 100(d).

4. A licensee is not entitled to bring suit in its own name as a patentee, unless it is an exclusive licensee holding all proprietary rights in the patent. *See Sicom Sys.*, 427 F.3d at 976; *Intellectual Prop. Dev., Inc. v. TCI Cablevision of Cal., Inc.*, 248 F.3d 1333, 1345 (Fed. Cir. 2001); *Textile Prods., Inc. v. Mead Corp.*, 134 F.3d 1481, 1484 (Fed. Cir. 1998); *Intuitive Surgical, Inc. v. Computer Motion, Inc.*, 214 F. Supp. 2d 433, 439 (D. Del. 2002); *Monsanto Co. v. Aventis Cropscience SA*, 226 F. Supp. 2d 531, 538 (D. Del. 2002).

5. Conversely, a non-exclusive licensee has no standing to bring suit or even to join a suit with the patentee. *See also General Talking Pictures Corp. v. Western Elec. Co.*, 304 U.S. 175, 181 (1938); *Waterman v. Mackenzie*, 138 U.S. 252, 255 (1891); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 956 (Fed. Cir. 2006); *Sicom Sys.*, 427 F.3d at 976; *Intellectual Prop. Dev.*, 248 F.3d at 1345; *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1552 (Fed. Cir. 1995); *Ortho Pharm. Corp. v. Genetics Inst., Inc.*, 52 F.3d 1026, 1030 (Fed. Cir. 1995; *Affinion Loyalty Group, Inc. v. Maritz, Inc.*, No. Civ. A. 04-360-JJF, 2006 WL 1431065, at *2 (D. Del. May 22, 2006); *Intuitive Surgical*, 214 F. Supp. 2d at 439. This is because the non-exclusive licensee lacks the requisite "legal ownership" of the patent; it does not hold any of "the proprietary sticks from the bundle of patent rights," therefore it can not exclude others from making, using or selling products practicing the patent. *Ortho Pharm.*, 52 F.3d at 1031. In other words, a non-exclusive licensee of a patent has only a personal interest in the patent, not a legal interest, and therefore suffers no

legal injury from infringement. *See Sicom Sys.*, 427 F.3d at 976, *Rite-Hite Corp.*, 56 F.3d at 1552; *Ortho Pharm.*, 52 F.3d at 1031 (stating that a non-exclusive licensee "suffers no legal injury from infringement and, thus, has no standing to bring suit or even join in a suit with the patentee.... [E]conomic injury alone does not provide standing to sue under the patent statute"). As the Second Circuit explained long ago:

> In its simplest form, a license means only leave to do a thing which the licensor would otherwise have a right to prevent. Such a license grants to the licensee merely a privilege that protects him from a claim of infringement by the owner of the patent monopoly. ... He has no property interest in monopoly of the patent, nor any contract with the patent owner that others shall not practice the invention. Hence the patent owner may freely license others, or may tolerate infringers, and in either case no right of the patent licensee is violated. Practice of the invention by others may indeed cause him pecuniary loss, but it does him no legal injury. ... Infringement of the patent can no more be a legal injury to a bare licensee than a trespass upon Blackacre could be an injury to one having a nonexclusive right of way across Blackacre.

Western Elec. Co. v. Pacent Reproducer Corp., 42 F.2d 116, 117 (2d Cir. 1930) (citations omitted), *see also Textile Prods.*, 134 F.3d at 1484; *Ortho Pharm.*, 52 F.3d at 1031; *Innis Speiden & Co. v. Food Mach. Corp.*, 2 F.R.D. 261, 264-65 (D. Del. 1942).

(2) <u>Novozymes Is a Non-Exclusive Licensee that Lacks Standing, Based on the Express, Unambiguous Terms of the TLA</u>

6. Whether a licensee is an exclusive or a non-exclusive licensee is determined by the "intent of the parties to the license as manifested by the terms of their agreement and by examining the substance of the grant." *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, __ F.3d __, Nos. 05-1311, 05-1335, 2006 WL 3346155, at *16 (Fed. Cir. Nov. 20, 2006); *Textile Prods.*, 134 F.3d at 1484 ("To qualify as an exclusive license, an agreement must clearly manifest the patentee's promise to refrain from granting to anyone else a license in the area of exclusivity."); *Ortho Pharm.*, 52 F.3d at 1033-34; *Intuitive Surgical*, 214 F. Supp. 2d at 439.

7. Here, there is a written license agreement, the TLA, that expressly grants to NZNA the non-exclusive right to use the technology covered by the '031 Patent. (GFF 6.) An

examination of the TLA is governed by the law of contracts. The Federal Circuit has stated that when interpreting a contract, a court must begin by looking at the plain language of the contract's express terms. *See Barron Bancshares, Inc. v. United States*, 366 F.3d 1360, 1375 (Fed. Cir. 2004); *McAbee Constr., Inc. v. United States*, 97 F.3d 1431, 1435 (Fed. Cir. 1996). When the contract's language is clear and unambiguous, "it must be given its 'plain and ordinary' meaning and the court may not look to extrinsic evidence to interpret its provisions." *Teg-Paradigm Envtl., Inc. v. United States*, 465 F.3d 1329, 1338 (Fed. Cir. 2006) (emphasis added) (citation omitted); *Barron Bancshares,* 366 F.3d at 1375; *McAbee Constr.*, 97 F.3d at 1435; *Interwest Constr. v. Brown*, 29 F.3d 611, 615 (Fed. Cir. 1994) ("[E]xtrinsic evidence … should not be used to introduce an ambiguity where none exists."); *Beta Sys., Inc. v. United States*, 838 F.2d 1179, 1183 (Fed. Cir. 1988) ("[E]xtrinsic evidence will not be received to change the terms of a contract that is clear on its face."). "To permit otherwise would cast a long shadow of uncertainty over all transactions and contracts." *McAbee Constr.*, 97 F.3d at 1436 (citation omitted).

8. These same general principles of contract law are followed by the state of North Carolina, the law governing the TLA according to its terms. *See Fidelity Bankers Life Ins. Co. v. Dortch*, 348 S.E.2d 994, 996 (N.C. 1986) ("Only when the contract is ambiguous does strict construction become inappropriate."); *Weyerhaeuser Co. v. Carolina Power & Light Co.*, 127 S.E.2d 539, 541 (N.C. 1962) ("When the language of a contract is clear and unambiguous, effect must be given to its terms…."); *Financial Servs. of Raleigh, Inc. v. Barefoot*, 594 S.E.2d 37, 42 (N.C. 2004) ("Under North Carolina law, when the language of the contract is clear and unambiguous, construction of the agreement is a matter of law for the court, and the court cannot look beyond the terms of the contract to determine the intentions of the parties.") (citation omitted); *Internet East, Inc. v. Duro Commc'ns, Inc.*, 553 S.E. 2d 84, 87 (N.C. Ct. App. 2001) ("Where the terms of a contractual agreement are clear and unambiguous, the courts cannot rewrite the plain meaning of the contract.").

9. The term "non-exclusive" in the TLA is clear and unambiguous. The substance of the grant conveyed is simply a non-exclusive right to use the Technology, with a covenant not to sue under any licensed patent (here the '031 Patent). (GFF 6.) Covenant not to sue simply creates a bare, non-exclusive license and cannot confer standing to sue under the Patent Act. *See Ortho Pharm.*, 52 F.3d at 1031. Novozymes explicitly retains the right to sublicense and does not convey to NZNA any right to exclude others from making, using or selling products that practice the '031 Patent. (GFF 6.)

10. Thus, based on the express terms of the TLA and the substance of the grant, NZNA is a non-exclusive licensee without standing to sue. NZNA may not be joined as a co-plaintiff to this lawsuit.

(3) Even Were the Court to Consider Extrinsic Evidence, that Evidence Does Not Show that Novozymes Is an Implied Exclusive Licensee

11. Novozymes argues that express terms in a contract, such as "non-exclusive," are not controlling and that this Court should look to extrinsic evidence, to "infer the intent of the parties" and imply an exclusive license. Novozymes apprehends and misinterprets the law. While it is true that some courts have considered facts and circumstances surrounding agreements between patentees and licensees when determining whether to imply an exclusive license, they have done so *only* when there is *no written agreement* between these parties, *see e.g., Kalman v. Berlyn Corp.*, 914 F.2d 1473 (Fed. Cir. 1990); *Aspex Eyewear, Inc. v. Altair Eyewear, Inc.*, 361 F. Supp. 2d 210 (S.D.N.Y. 2005); *Weschler v. Macke Int'l Trade, Inc.*, 399 F. Supp. 2d 1088 (C.D. Cal. 2005); *Loegering Mfg., Inc. v. Grouser Prods., Inc.*, 330 F. Supp. 2d 1057, 1072-74 (D.N.D. 2004), or when the *written agreement is silent or ambiguous* as to exclusivity, s*ee, e.g., Ricoh Co. v. Nashua Corp.*, 947 F. Supp. 21, 24 (D.N.H. 1996) (implying exclusivity into a written license that was ambiguous as to exclusivity). Novozymes does not cite to any precedential cases in which courts have implied an exclusive license in the face of an explicit and unambiguous non-

exclusive written license. This is because such a holding would directly contradict the well-established contract principle that clear contractual terms govern contract interpretation.

12. The Federal Circuit recently confirmed these principles. In *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, the Court determined that the plaintiff was an exclusive licensee based solely on the terms and substance of a written license agreement between the patent owner and the licensee. 2006 WL 3346155, at *16. Applying Indiana law (which, like North Carolina, "follows the same 'four corners rule' of contract interpretation in which courts do not look beyond the instrument in question to determine the parties' intent if the terms of the instrument are unambiguous"), the Court found that the contract unambiguously provided an exclusive license; it stopped its analysis there and did not look to any extrinsic evidence. *Id.*

13. Similarly, there is no need to look beyond the TLA because it, and the term "*non*-exclusive," are clear and unambiguous, as Novozymes' trial witnesses repeatedly admitted. *See* Meyer, Tr. (D) at 30:10-31:11, A-15029:10–15030:11; Olofson, Tr. (D) at 177:3-178:2, A-15176:3–15177:2. (GFF 9-10.) The right conveyed is a non-exclusive right to use the Technology, with a covenant not to sue NZNA under any licensed patent. Novozymes explicitly retains the right to sublicense and does not convey to NZNA any right to exclude others from making, using or selling products that practice the '031 Patent. All terms of the TLA are consistent with its express and unambiguous grant of a non-exclusive license. (GFF 6.) It would be legally improper to go further. NZNA is a non-exclusive licensee without standing.

14. Even if this Court were to consider extrinsic evidence concerning the TLA, such evidence in fact supports a finding that NZNA is simply a non-exclusive licensee. Specifically, Novozymes admits it owns the '031 Patent and that it maintains complete control over the patent. *See* Meyer, Tr. (D) 11:19-25, A-15010:19-25, 18:14-16, A-15017:14-16. Novozymes admits that it maintains complete control over the licensing of its technology, and that NZNA does not, and will never, have any licensing authority. *See* Meyer, Tr. (D) 10:1-7, A-15009:1-7, 49:19-24, A-15048:19-24. Novozymes admits that it gives NZNA access to its technology under specific

written agreements, and does not convey any ownership interest in its technology to NZNA through these agreements. *See* Meyer, Tr. (D) 19:7-22, A-15018:7-22 (stating that these are "practical agreements" so as to legally allow a subsidiary to "operate and sell under the appropriate technology … [so that] they have access to the technology they need and also can operate under the various patents"). Novozymes admits that the TLA is the agreement that provides the "legal structure" for the relationship between Novozymes and NZNA concerning the technology covered under the '031 Patent. *See* Meyer, Tr. (D) 27:16-28:5, A-15026:16–15027:5 (stating that the TLA "allows the North American organization to operate and sell [and] produce products"), 35:6-16, A-15034:6-16, 44:10-15, A-15043:10-15. Novozymes admits the TLA states that it is "non-exclusive" and that it is purposefully non-exclusive so as to anticipate instances in which Novozymes wished to give rights to the technology to entities in addition to NZNA. *See* Meyer, Tr. (D) 30:10-31:11, A-15029:10–15030:11, 38:9-39:6, A-15037:9–15038:6. And Novozymes admits that it in fact has licensed the Technology covered under the TLA to parties in addition to NZNA. *See* Meyer, Tr. (D) 46:17-47:25, A-15045:17–15046:25. (GFF 8-13.) The numerous admissions from Novozymes at trial are consistent with the unambiguous TLA: NZNA simply has the right to use the technology of the '031 Patent and does not have any right to exclude others from making, using or selling this technology.

(4) Authority Relied on by Novozymes Is Irrelevant and Distinguishable

15. The authority on which Novozymes relies is distinguishable. To begin with, for the majority of cases on which it relies, Novozymes simply picks and chooses *dicta* out of context, when these cases holdings actually support Genencor's analysis and argument. *See Waterman v. Mackenzie*, 138 U.S. 252; *Rite-Hite*, 56 F.3d 1538; *Ortho Pharm.*, 52 F.3d 1026; *Textile Prods.*, 134 F.3d 1481; *Ricoh*, 947 F. Supp. at 23-24. Novozymes cites to *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999), claiming it supports implying an exclusive license to NZNA. In *WMS*, the Court allowed the parent to recover its subsidiary's lost

profits because the defendants had *stipulated* to an exclusive license relationship. 184 F.3d at 1361. There is no such stipulation here. *See* Pl. Br. at 24-30. *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.*, 425 F.3d 1366 (Fed. Cir. 2005), relates to an entirely different issue. There, the court permitted the jury to consider evidence of a non-exclusive licensee's lost profits because it would bear on what the patentee would seek as a reasonable royalty. 425 F.3d at 1377-78. The court did *not* permit recovery of the non-exclusive licensee's lost profits, but, rather, the opposite (a royalty is, after all, the alternative to a lost profits claim).

16. Novozymes most heavily relies on *Kalman v. Berlyn Corp.*, 914 F.2d 1473, 1479-82 (Fed. Cir. 1990), in support of its claim that an exclusive license may be implied here, arguing that NZNA is the "sole" licensee of the '031 Patent, that there exists a close corporate relationship between Novozymes and NZNA and that NZNA sold products that competed with SPEZYME® Ethyl. *Kalman*, however, is distinguishable on several grounds.

17. First, in *Kalman* there was no written license agreement between the patentee and its licensee. The court was therefore free to consider extrinsic evidence to determine whether it could imply an exclusive relationship. *Cf. Beta Sys.*, 838 F.2d at 1183.

18. Second, in *Kalman* the licensee manufactured and sold products that practiced the patent. *See Kalman*, 914 F.3d at 1480 (stating that it is "clear to all parties that the Autoscreen device, manufactured and marketed solely by PDL, is an embodiment of the device claimed in the '017 patent"). Here, the Liquozyme Products do not practice the '031 Patent; in fact, NZNA does not make, use or sell any products that practice the '031 Patent. *See* Olofson, Tr. (D) 176:13-177:2, A-15175:13–15176:2; Uncontroverted Facts (Damages) at ¶ H, A-14503. (GFF 12.) *Kalman* turned in great part on the need to protect the licensee's right to compete using the patent at issue. That is not the case here.

19. Third, the relationship between the patentee and licensee in *Kalman* is quite different from the relationship between Novozymes and NZNA. *Kalman* addressed a suit brought by an inventor/patentee, Dr. Kalman. Dr. Kalman, together with his brother, formed an entity,

"PDL," for the specific purpose of manufacturing and selling the device that practiced the patent at issue in the case. *See Kalman*, 914 F.2d at 1475. Here, Novozymes admits that it and NZNA are separate legal entities that have an "arms length" relationship. *See* Loft, Tr. (D) 64:25-66:1, A-15063:25–15065:1, 68:1-4, A-15067:1-4. Novozymes further admits that this separate corporate status is maintained for beneficial financial purposes. *See* Meyer, Tr. (D) 36:8-24, A-15035:8-24; Loft, Tr. (D) 64:25-66:1, A-15063:25–15065:1. NZNA pays its own expenses from checks written in the United States from U.S. banks and has independent responsibility to ensure it is in compliance with U.S. law, including filing tax returns and paying U.S. taxes. *See* Loft, Tr. (D) 56:15-22, A-15055:15-22, 73:4-16, A-15072:4-16, 76:20-77:7, A-15075:20–15076:7. NZNA was formed long before the '031 Patent issued, and was not formed to practice the '031 Patent. (GFF 45.)

20. Courts "view skeptically requests to ignore the corporate form when such requests come from the party responsible for establishing the corporation." *Schreiber Foods, Inc. v. Beatrice Cheese, Inc.*, 305 F. Supp. 2d 939, 953 (E.D. Wis. 2004), *rev'd on other grounds*, 402 F.3d 1198 (Fed. Cir. 2005) (holding that patentee's parent company who had a non-exclusive license did not have standing); *see also* 1 William Meade Fletcher, *Fletcher Cyclopedia of the Law of Private Corporations* § 43 (rev. ed. 1999) (stating that "[t]here is a presumption of separateness" and that "even when the parent exercises domination and control over the subsidiary, corporate separateness will be recognized")). In fact, courts have repeatedly rejected efforts to blur the lines between legal entities for standing purposes, regardless of their affiliation. *See Merial Ltd. v. Intervet Inc.*, 430 F. Supp. 2d 1357, 1362 (N.D. Ga. 2006) (holding that parent company with non-exclusive license has no standing); *DePuy, Inc. v. Zimmer Holdings, Inc.*, 384 F. Supp. 2d 1237, 1239 (N.D. Ill. 2005) (Posner, J. sitting by designation) (dismissing case because the corporate parent of a patent owner lacked standing to sue for infringement); *Schreiber Foods*, 305 F. Supp. 2d at 953-54; *Carver v. Velodyne Acoustics, Inc.*, 202 F. Supp. 2d 1147, 1149 (W.D. Wash. 2002) (holding that manufacturing entity has no standing; a party "may

not … take advantage of the corporate form and simultaneously shun its disadvantages"); *Blumenthal v. Barber-Colman Holding Corp.*, No. 90 C 20365, 1991 WL 352525, at *2-3 (N.D. Ill. Nov. 26, 1991) (holding that sole manufacturing licensee which is wholly owned by the patent owner has no standing). The law simply does not allow a "corporate plaintiff in a patent-infringement case to have it both ways" by taking advantage of corporate form while at the same time denying its disadvantages. *Schreiber Foods*, 305 F. Supp. 2d at 953-54. The law "generally does not allow the option of 'reverse piercing' the corporate veil when it suits the corporation's owner." *Lans v. Gateway 2000, Inc.*, 84 F. Supp. 2d 112, 123 n.10 (D.D.C. 1999), *aff'd,* 252 F.3d 1320 (Fed. Cir. 2001) (holding that sole shareholder of patent holding company, which is also managing director of company, does not have standing to sue for infringement). Thus, this "relationship" consideration of *Kalman* is distinguishable as well.

21. Finally, the only remaining factor from *Kalman* on which Novozymes relies to argue that NZNA is an implied exclusive licensee, is the fact that NZNA is the "sole" (only) licensee of the '031 Patent. Contrary to what Novozymes seems to imply, "sole licensee" is not a term of legal significance as are "exclusive licensee" and "non-exclusive licensee." Courts descriptively use the term "sole" to mean "only." *See Sicom Sys.*, 427 F.3d at 978 (using the terms "sole" and "only" interchangeably to refer to the licensee); *Rite-Hite Corp.*, 56 F.3d at 1553 (referring to licensee as "only" licensee); *Ricoh*, 947 F. Supp. at 24 (using the terms "sole manufacturer" and "only licensee" to describe a single licensee). While courts have considered this fact as part of an overall implied exclusive licensee analysis, that a licensee is the "sole" licensee is not enough in itself to confer standing. *See Bicon*, 441 F.3d at 956 (affirming denial of standing because evidence that licensee was the "only licensee" without more was not enough to establish status as exclusive licensee); *Sicom*, 427 F.3d at 980 (affirming denial of standing to a "sole" or "only" licensee because licensee had failed to demonstrate substantial rights in the patent); *Rite-Hite*, 56 F.3d at 1553 ("The grant of a bare license to sell an invention in a specified territory, even if it is the only license granted by the patentee, does not provide standing without

the grant of a right to exclude others."); *Ricoh*, 947 F. Supp. at 24 ("Of course, the fact that a party holds the only license granted by the patent owner would not, by itself, render that license 'exclusive' for standing purposes.").

22. In sum, based on the unambiguous language of the TLA, NZNA is a non-exclusive licensee of the '031 Patent. Because the contract is clear, this Court may not properly look to extrinsic evidence to interpret the meaning of the contract. However, even if the Court were to consider the extrinsic evidence, none of that evidence establishes that NZNA has the right to exclude others from making, using or selling a product that practices the '031 Patent, such that it is an exclusive licensee. NZNA thus does not have standing and may not be joined as a co-plaintiff.

B. Novozymes Is Not Entitled To Lost Profits Damages

(1) Governing Law

23. The patentee bears the burden of proving lost profits. *See BIC Leisure Prods., Inc. v. Windsurfing Int'l, Inc.*, 1 F.3d 1214, 1217 (Fed. Cir. 1993) (citing *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1164 (Fed. Cir. 1991). Lost profits awards "can not be based upon speculation or optimism, but must be established by evidence." *Hebert v. Lisle Corp.*, 99 F.3d 1109, 1119 (Fed. Cir. 1996); *BIC Leisure*, 1 F.3d at 1218. Courts do not hesitate to deny lost profits where the patentee fails to establish lost profits to a reasonable probability. *See Grain Processing Corp. v. American Maize-Prods. Co.*, 185 F.3d 1341, 1343 (Fed. Cir. 1999); *BIC Leisure*, 1 F.3d at 1219; *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1977). Accordingly, a patentee may *only* recover lost profits by proving "a causal relation between the infringement and its loss of profits," by showing it would have received additional profits "but for" the infringement. *BIC Leisure*, 1 F.3d at 1218. Establishing "but for" causation and entitlement to lost profits entails a reconstruction of the applicable market, as it would have developed absent the infringing product, through "sound economic proof

of the nature of the market." *Crystal Semiconductor Corp. v. TriTech Microelecs. Int'l, Inc.*, 246 F.3d 1336, 1355 (Fed. Cir. 2001) (*citing Grain Processing*, 185 F.3d at 1350).

24. The Federal Circuit has recognized the four factor *Panduit* test and the two-supplier market test as methods for evaluating "but for" causation of the existence and amount of lost profits. *See Rite-Hite*, 56 F.3d at 1545; *BIC Leisure*, 1 F.3d at 1218-19; *Micro Chem., Inc. v. Lextron, Inc.*, 318 F.3d 1119, 1124 (Fed. Cir. 2003). Where a patentee fails to prove even one factor of either test, courts deny lost profits awards. *See, e.g., Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 932 F.2d 1453, 1458 (Fed. Cir. 1991) (denying lost profits without reaching a challenge to the proof of amount of profit because patentee had failed to prove lack of acceptable non-infringing substitutes); *Grain Processing*, 185 F.3d at 1349 (denying lost profits to plaintiff for failure to establish absence of acceptable non-infringing substitutes); *Panduit*, 575 F.2d at 1156 (denying lost profits for failure to establish the amount of profit he would have made due to lack of evidence on patentee's fixed costs).

(2) Novozymes May Not Claim NZNA's Lost Profits

25. Because NZNA is not a party to this lawsuit, Novozymes may not recover NZNA's lost profits as its own. To begin with, as Novozymes' expert Ms. Davis admitted, Novozymes offered no evidence or opinion as to its lost profits damage claim if NZNA is not a party to this case. *See* Davis, Tr. (D) 302:23-303:4, A-15302:23–15304:4. Novozymes cannot prove its lost profits claim to the required reasonable probability when its expert timely admitted that she offered no opinion.

26. Moreover, Novozymes' "close relationship" with NZNA does not allow Novozymes to collect NZNA's lost profits. The Federal Circuit has held that a patentee "may not enjoy the advantages of … separate corporate structure[s] and, at the same time, avoid the consequential limitations of that structure – in this case, the inability of the patent holder to claim the lost profits of its non-exclusive licensee." *Poly-America, L.P. v. GSE Lining Tech., Inc.*, 383

F.3d 1303, 1311 (Fed. Cir. 2004) (holding that a patentee could not recover lost profits on sales by its sister corporation); *see also Carver*, 202 F. Supp. 2d at 1149; *Lans*, 84 F. Supp. 2d at 123.

27. Here, Novozymes structured the TLA and its relationship with NZNA for its own reasons, such as the significant tax benefits it receives because of the 40% royalty rate, which it negotiated with U.S. tax authorities. *See* Meyer, Tr. (D) 36:8-24, A-15035:8-24; Olofson, Tr. (D) 168:13-169:5, A-15167:13–15168:5; Loft, Tr. (D) 64:25-65:20, A-15063:25–15064:20, 75:15-77:15, A-15074:15–15076:15; 80:11-14, A-15079:11-14; TE 240, A-16028–A-16033; TE 455, A-16236–A-16549; TE 740, A-16722–A-16829. (GFF 7-8.) Novozymes enjoys the benefits of its corporate structure and agreements with NZNA, and it may not "avoid the consequential limitations of that structure." *Poly-America*, 383 F.3d at 1311. Accordingly, Novozymes may not disregard the corporate form it created, and the TLA it wrote, and may not recover NZNA's purported lost profits.

(3) Novozymes Fails to Prove Its Lost Profits

(a) *There were numerous non-infringing alternatives available to providers of SPEZYME® Ethyl*

28. Under the Panduit test the patentee must prove the "absence of acceptable noninfringing substitutes." *BIC Leisure*, 1 F.3d at 1217-19. The existence of even one available noninfringing substitute prevents the patentee from proving its case. *See, e.g., Grain Processing*, 185 F.3d at 1349 (affirming denial of lost profits award where a single acceptable noninfringing alternative was found to be "available").

29. Under the two-supplier market test, "[i]f the patentee shows two suppliers in the relevant market, capability to make the diverted sales and its profit margin, that showing erects a presumption of 'but for' causation." *Micro Chem.*, 318 F.3d at 1125. In such a case "[t]he infringer may rebut the presumption by showing that the patentee reasonably would not have made some or all of the diverted sales 'but for' the infringement. For example, the infringer may rebut the presumption by showing that it sold another available, noninfringing substitute in the

relevant market." *Id.* Where "the infringing supplier had two available alternatives: one infringing and the other noninfringing . . . even absent the infringement, customers may have selected the infringer's available, noninfringing alternative over the patented invention." *Id.* (*citing Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1142 (Fed. Cir. 1991)). As such, the demonstration that the infringer sold even one available noninfringing substitute rebuts the presumption. Novozymes is not allowed the presumption of the two-supplier market test as it has not demonstrated its profit margin.

30. Acceptability of an alternative product is determined by consumers of the infringing product because "[c]onsumer demand defines the relevant market and relative substitutability among products therein." *Grain Processing*, 185 F.3d at 1355. Products need not be identical to a patented product to be deemed acceptable because, "by definition, non-infringing products do not represent an embodiment of the invention." *SmithKline Diagnostics*, 926 F.2d at 1166. Products may also be acceptable substitutes even when they do not have the exact advantages that the patented invention brings. A lack of patented advantages is relevant *only* "if it is shown that consumers specifically want a device with those advantages." *Slimfold Mfg.*, 932 F.2d at 1458; *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1373 (Fed. Cir. 1991) ("[a] product on the market which lacks the advantages of the patented product can hardly be termed [an acceptable] substitute *to a customer who wants those advantages*") (emphasis added); *see also SmithKline Diagnostics*, 926 F.2d at 1166 (stating that "if the realities of the market are that others would likely have captured sales made by the infringer, despite a difference in the products, it follows that the 'but for' test is not met").

31. Proof that Genencor had even one acceptable noninfringing substitute available vitiates Novozymes' entire damages model, causing Novozymes to fail the *Panduit* test and rebutting any two-supplier market presumption. *See Micro Chem.*, 318 F.3d at 1125 (citing *Kaufman*, 926 F.2d at 1142); *BIC Leisure*, 1 F.3d at 1218-19. Novozymes' proof fails against either the *Panduit* test or the two-supplier market test. Genencor had not only one, but *four*

available non-infringing substitutes for SPEZYME® Ethyl: SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA and SPEZYME® XTRA. First, none of Genencor's alternative products – SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA and SPEZYME® XTRA – infringe any Novozymes patent. (GFF 38.)

32. The relevant customers here are former SPEZYME® Ethyl customers. *See* Davis, Tr. (D) 238:23-239:6, A-15237:23–15238:6; Uncontroverted Facts (Damages) at ¶ H, A-14503; TE 741 at 8, A-16837. SPEZYME® Ethyl legally entered the market by April 2004. *See* FF (Liability) 57, A-10023. (GFF 22.) In the "but for" world, SPEZYME® Ethyl would have been removed from the market on March 15, 2005, the day the '031 Patent issued. *See* TE 100, A-7001–7040. Thus, the "but for" world would have begun on March 15, 2005, with multiple customers who had used SPEZYME® Ethyl for almost a year then forced to chose a new product.

33. The dry mill fuel ethanol market dramatically changed from 1999, when the Liquozyme Products first entered the market, to the "but for" world of March 2005 – August 2006. When the Liquozyme Products first launched, there were only about 30 ethanol plants in the United States, but there were 77 ethanol plants when the '031 Patent issued, and by 2006 there were around 103-105. *See* Faller, Tr. (D) 113:21-114:6, A-15112:21–15113:6, 126:23-127:18, A-15125:23–15126:18. The fuel ethanol market and political climate are different today than in 1999. *See* Davis, Tr. (D) 314:14-315:1, A-15314–15315:1. (GFF 16.) No evidence has been offered that the behavior of the larger fuel ethanol market of between 77 and 105 plants during the accounting period could be accurately modeled by the behavior of the small 30 plant market that existed when the Liquozyme Products first entered the market.

34. The most instructive evidence of customer behavior in the "but for" world is customer reaction to Genencor's decision to pull SPEZYME® Ethyl from the market on August 24, 2006, in response to the liability decision by this Court. *See* Beto, Tr. (D) 420:20-421:11, A-15420:20–15421:11. Such data shows the behavior of customers forced to switch away from SPEZYME® Ethyl after using it for a long time period, which is more instructive then examining

customer behavior before customers had ever purchased SPEZYME® Ethyl. *See* Davis, Tr. (D) 344:16-21, A-15344:16-21 ("the relevant question" for determining what Ethyl customers would have done but for the infringement is to ask "what those [SPEZYME® Ethyl] customers would do in the absence of SPEZYME® Ethyl"); *see also BIC Leisure*, 1 F.3d at 1218 ("[m]oreover [patentee's] sales continued to decline after the district court enjoined BIC's infringement. This aspect of the record shows as well that Windsurfing did not capture its market share of the sales replacing BIC's market sales"). In fact, the strongest evidence is evidence of actual purchasing decisions by customers, as a customer preference expressed with a customer's own money is a much stronger statement than a preference expressed with words. *See* Davis, Tr. (D) 309:19-310:15, A-15309:19–15310:15; Faller, Tr. (D) 264:11-12, A-15245:11-12. (GFF 17.)

35. Since SPEZYME® Ethyl was removed from the market on August 24, 2006, about 76% of former SPEZYME® Ethyl customers have purchased an alternate alpha-amylase product from Genencor (SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA or SPEZYME® XTRA); about 14% of former SPEZYME® Ethyl customers are in the process of testing products; and only about 10% responded to the loss of SPEZYME® Ethyl by purchasing an alpha-amylase product from NZNA. *See* Beto, Tr. (D) 425:9-17, A-15425:9-17. All four of Genencor's non-infringing substitutes have been purchased by former SPEZYME® Ethyl customers as replacements for SPEZYME® Ethyl, including SPEZYME® Fred L (Beto, Tr. (D) 418:4-24, A-15418:4-24), SPEZYME® Fred (Beto, Tr. (D) 422:23-25, A-15422:23-25), SPEZYME® HPA (Beto, Tr. (D) 423:1-17, A-15423:1-17) and SPEZYME® XTRA (Beto, Tr. (D) 422:20-22, A-15422:20-22, 423:4-13, A-15423:4-13, 424:12-14, A-15424:12-14). (GFF 37.) This establishes Genencor's four non-infringing alpha-amylases were acceptable substitutes in the "but for" world.

36. Additionally, some sales were made of SPEZYME® XTRA following trials even while SPEZYME® Ethyl was still on the market. *See* Beto, Tr. (D) 195:12-196:7, A-15194:12–15195:7, Davis, Tr. (D) 308:19-309:18, A-15308:19–15309:18; TE 775, A-16872. (GFF 33.)

This evidence verifies SPEZYME® XTRA's acceptability in a "but for" world when, in the actual world, some customers chose to purchase SPEZYME® XTRA instead of SPEZYME® Ethyl while SPEZYME® Ethyl was still on the market and had not been determined to be infringing.

37. Novozymes has not offered evidence to contradict the data showing that a large majority of customers chose one of Genencor's noninfringing products over the Liquozyme Products after SPEZYME® Ethyl was removed from the market under conditions highly analogous to the "but for" world. Instead, Novozymes focuses on specific technical features. However, focusing on technical variation of products, such as required product concentration, thermostability, viscosity reduction and calcium requirement, divorced from analysis of demonstrated customer preferences, does not illustrate customer behavior in the "but for" world—especially here, where each customer has a slightly different process of making fuel ethanol, and may not demand the same features as every other customer. *See* Crabb, Tr. (D) 365:5-13, A-15365:5-13; Beto, Tr. (D) 416:10-417:4, A-15416:10–15417:4; TE 687 at NV-D-0126379, A-16654. (GFF 17.) Rather, because "a difference in product/process technology does not automatically disqualify a product as an acceptable noninfringing substitute . . . *[t]he Court looks to the purchaser's motivation, first*, then to the product features in determining whether a substitute exists." *Joy Techs., Inc. v. Flakt, Inc.*, 954 F. Supp. 796, 803-05 (D. Del. 1996) (finding a noninfringing product was an acceptable substitute based on testimony and tests of the product) (emphasis added).

38. Third, SPEZYME® Fred, SPEZYME® Fred L, SPEZYME® HPA and SPEZYME® XTRA were all available alpha-amylases during the accounting period. SPEZYME® Fred, SPEZYME® Fred L and SPEZYME® HPA have all been continuously on the market since prior to the issuance of the '031 Patent and thus were available during the accounting period. *See* Beto, Tr. (D) 417:11-19, A-15417:11-19, 418:25-419:10, A-15418–15419:10; Faller, Tr. (D) 108:15-24, A-15197:15-24; Uncontroverted Facts (Damages) at ¶ H, A-14503. *See also Slimfold Mfg.*, 932 F.2d at 1458 (technology available before the accounting

period constitutes a non-infringing alternative, because the infringer could have used it during the accounting period). (GFF 20.)

39. While SPEZYME® XTRA was not on the market as of March 15, 2005, Federal Circuit precedent "permits available alternatives – including but ***not limited to products on the market*** – to preclude lost profits damages." *Grain Processing*, 185 F.3d at 1349 (citations omitted) (emphasis added); *see also Slimfold Mfg.*, 932 F.2d at 1458 (technology available before the accounting period constitutes a non-infringing alternative, because the infringer could have used it during the accounting period). SPEZYME® XTRA meets all of the findings underlying the *Grain Processing* holding. *See Grain Processing*, 185 F.3d at 1353.

40. Not only could Genencor "readily obtain all of the materials needed" for SPEZYME® XTRA from the beginning of the accounting period, but it also had the knowledge to design and "necessary equipment, know-how and experience" to create SPEZYME® XTRA well before March 15, 2005. *Grain Processing*, 185 F.3d at 1353-54. Genencor had DNA underlying the alpha-amylase enzyme now sold as SPEZYME® XTRA before the accounting period began in March 2005. *See* Crabb, Tr. (D) 374:9-376:7, A-15374:9–15376:7; Faller, Tr. (D) 92:22-24, A-15091:22-24; TE 228 at 6, ¶ 15, A-16006; FF (Liability) 61, A-10024–10025, 67, A-10027, 69, A-10028. Genencor had the ultimate source of this DNA, the wild type *Bacillus stearothermophilus*, for even longer, initially obtaining it as early as 1986, and acquiring an unmodified *Bacillus stearothermophilus* alpha-amylase construct from EBS at the same time it acquired the construct that led to SPEZYME® Ethyl, around 2002. *See* Crabb, Tr. (D) 371:18-20, A-15371:18-20; TE 228 at ¶ 11, A-16004–16005. Genencor had the host expression system that is used to produce the alpha-amylase enzyme now sold as SPEZYME® XTRA, known as the "licheniformis generic host expression system," prior to March of 2005. *See* Crabb, Tr. (D) 399:19-400:3, A-15399:19–15400:3, 401:7-12, A-15401:7-12. And, this Court's own findings demonstrate that Genencor had knowledge of the technical design and advantages of SPEZYME® XTRA at the beginning of the accounting period, as they demonstrate that Genencor had

marketed another product with the same alpha-amylase technology prior to that time. *See* FF (Liability) 61, A-10024–10025, 67, A-10027, 69, A-10028; Faller, Tr. (D) 92:22-24, A-15091:22-24. (GFF 26-29.)

41. Genencor marketed G997 prior to the introduction of SPEZYME® Ethyl. *See* Faller, Tr. (D) 88:3-15, A-15087:3-15, 91:19-24, A-15090:19-24. This alpha-amylase was a wild type *Bacillus stearothermophilus* alpha-amylase. *See* FF (Liability) 61, A-10024–10025; Faller, Tr. (D) 92:22-24, A-15091:22-24. This Court has found that G997 "contains a 29 amino acid deletion at the C-terminus." FF (Liability) 67, A-10027, 69, A-10028. SPEZYME® XTRA is also composed of an alpha-amylase enzyme that is "identical to the wild type [*Bacillus stearothermophilus* alpha-amylase] in all respects with the exception that it is lacking the last 29 amino acids at the C terminal end of the molecule." Crabb, Tr. (D) 399:23-400:3, A-15399:23–15400:3. (GFF 26.) As with the defendants in *Grain Processing*, there were no technical reasons preventing Genencor from developing SPEZYME® XTRA in March 2005. *See* Crabb, Tr. (D) 402:18-20, A-15402:18-20. Genencor did not create and market SPEZYME® XTRA earlier because, while still highly profitable, SPEZYME® XTRA had a lower profit margin than SPEZYME® Ethyl and, as discussed in Section V, Genencor "reasonably believed [it] had a noninfringing product" in SPEZYME® Ethyl. *Grain Processing*, 185 F.3d at 1354; *see also* Crabb, Tr. (D) 205:9-11, A-15204:9-11, 402:4-17, A-15402:4-17; TE 483 at 15, A-16624. (GFF 30.) While, as in *Grain Processing*, Genencor would have had incentive to develop SPEZYME® XTRA in the "but for" world, it had a purely economic motive not to develop it sooner in the actual world, where it believed SPEZYME® Ethyl was not infringing. *See Grain Processing*, 185 F.3d at 1354. And, as in *Grain Processing*, customers did not demand the exact features claimed in the '031 Patent, but rather demanded a type of product for which "the patented product is just one exemplar." *Id.* (GFF 31.) The best proof is customer choices after SPEZYME® Ethyl left the market. Novozymes' argument that the Liquozyme Products, which do not practice the '031 Patent, would have captured those sales is also a damning admission. *See* Pl. Br. at 16.

42. Contrary to Novozymes' argument, *Micro Chem.* does not contradict the finding that SPEZYME® XTRA was available during the accounting period. Rather, this case reiterates that *Grain Processing* "provided guidelines for when an alternative not actually 'on sale' during the infringement period may have been readily 'available' and thus part of the economic calculation of lost profits." *Micro Chem.*, 318 F.3d at 1122. While the Federal Circuit did find the product in *Micro Chem.* was not "available" during the infringement, it did so because, unlike with SPEZYME® XTRA, the infringer lacked the necessary equipment and know-how to make the new product during that time period. *See id.* at 1123.

43. Similarly, the court in *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 166 F. Supp. 2d 1008, 1030 (D. Del. 2001), *vacated in part on other grounds*, 370 F.3d 1131 (Fed. Cir. 2004), found technology was not available because the infringer was not capable of implementing the alternative during the accounting period, the customer's acceptance of the alternative design was questionable and the infringer had attempted to solve the problem the patent addressed all through the accounting period. Those factors are not at issue here.

44. Novozymes has not met its burden of proving the absence of non-infringing alternatives, a fundamental assumption to both Novozymes' only damages model and the legal standard for lost profits damages. *See Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369, 1377 (Fed. Cir. 2003); *see also* Davis, Tr. (D) 541:14-542:3, A-15541:14–15542:3. Thus, Novozymes may not receive lost profits damages.

(b) *Novozymes has not proven the amount of lost profits to a reasonable certainty*

45. Under both the *Panduit* and two-supplier market tests, Novozymes must also independently prove to a reasonable probability the amount of the profit it would have made "but for" the infringement. *See BIC Leisure*, 1 F.3d at 1218-19; *Oiness v. Walgreen Co.*, 88 F.3d 1025, 1029-30 (Fed. Cir. 1996) (refusing to award lost profits when plaintiff offered as evidence of the amount of lost profits "vague estimation and gross extrapolation [in addition] to

unsupported presumption"); *Panduit*, 575 F.2d at 1156 (denying lost profits for patentee's failure to establish the amount of profit he would have made); *Micro Chem.*, 318 F.3d at 1124-25. Novozymes has failed in this proof.

46. Novozymes bases its lost profits calculation on the assumption that "[f]or every kilogram of Ethyl sold, a kilogram of Liquozyme would have been sold instead." Pl. Br. at 16. However, Novozymes has not offered evidence to support this assumption.

47. Its expert, Ms. Davis, testified that she based her lost profits calculations on a one to one substitution rate because "the documents from both parties *seem to suggest* that that was a one for one substitution rate." Ms. Davis failed to point to any specific evidence to support what she admitted was her assumption. *See* Davis, Tr. (D) 257:14-21, A-15256:14-21. Ms. Davis' assumption and vague recollection about what documents seemed to suggest to her does not establish the amount of Liquozyme customers would have used to replace a kilogram of SPEZYME® Ethyl to a reasonable probability.

48. Similarly, Novozymes cited testimony of its fact witness Mr. Faller for the proposition that "[b]ut for the infringement, Novozymes would have sold the same amount of Liquozymes [as the amount of SPEZYME® Ethyl Genencor sold]." Pl. Br. at 5. However, the cited testimony of Mr. Faller does not discuss the proportion of Liquozyme that customers would use to replace a kilogram of SPEZYME® Ethyl, but instead discusses loss of Liquozyme market share due to legal competition from SPEZYME® Ethyl prior to the issuance of the '031 Patent. *See* Faller, Tr. (D) 104:4-13, A-15103:4-13.

49. Novozymes also bases its lost profits calculation on the notion that, "but for" the infringement, the total number of alpha-amylase sales would have been the same even as prices were higher. In other words, Novozymes' damages model is based on the assumption that there was no price elasticity for alpha-amylase products during the relevant time and that customers would buy identical amounts regardless of the price. *See* Davis, Tr. (D) 541:14-542:3, A-15541:14–15542:3 (the only way to arrive at Novozymes' lost profits amount "to a reasonable

certainty," is to "assume no price elasticity" in the relevant price range in the "but for" world). However, experts for both sides admitted that this is simply incorrect — price elasticity could not have been zero. *See* Davis, Tr. (D) 547:3-19, A-15547:3-19; Teece, Tr. (D) 451:12-22, A-15451:12-22. (GFF 35.)

50. Novozymes fails to meet its burden of proof of a "but for" profit margin. Without that, there is no proof of the total amount of lost profits. Novozymes has not met its burden to prove any lost profits and lost profits are denied.

(c) *Novozymes has failed to prove price erosion*

51. Novozymes also fails to demonstrate its price erosion damages to a reasonable probability, as there is evidence of causes other than the infringement that may have led to the lower prices. *See* Faller, Tr. (D) 155:1-19, A-15154:1-19 ("[p]ricing declines are a regular part of business"). (GFF 18, 21.) Without proving that all price declines were caused specifically by the infringement, Novozymes has failed to show that "but for" the infringement, the price for the Liquozyme Products would not have declined.

52. Further, as previously discussed, other non-infringing alternative products would have been on the market in the "but for" world. (GFF 20, 26-31.) Novozymes has offered no proof that these non-infringing alternatives would have had no more or less impact on prices that Novozymes' alleges SPEZYME® Ethyl had.

53. Finally, Novozymes' price erosion damages figure is predicated on zero price elasticity, which both experts in this case testified is not possible. *See* Davis, Tr. (D) 541:14-542:3, A-15541:14–15542:3, 547:3-19, A-15547:3-19; Teece, Tr. (D) at 451:12-22, A-15451:12-22. (GFF 35.) For each of these reasons, Novozymes has failed to prove price erosion damages to a reasonable probability, and thus price erosion damages are denied.

C. Novozymes Is Entitled to No More Than an 8% Royalty on Sales of SPEZYME® Ethyl Products

(1) Governing Law

54. A patentee unable to prove lost profits to a reasonable probability may be awarded damages "in no event less than a reasonable royalty," assuming the patentee meets its "burden of proving [the] amount" of the award. 35 U.S.C. § 284; *Oiness*, 88 F.3d at 1029 (citing *SmithKline Diagnostics*, 926 F.2d at 1164). Any reasonable royalty awarded "must be supported by relevant evidence in the record." *Unisplay, S.A. v. American Elec. Sign Co.*, 69 F.3d 512, 517 (Fed. Cir. 1995); *see also Riles v. Shell Exploration & Prod. Co.*, 298 F.3d 1302, 1311 (Fed. Cir. 2002) (a reasonable royalty demands "sound economic and factual predicates"); *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1376-77 (Fed. Cir. 2002); *W.L. Gore & Assoc., Inc. v. Carlisle Corp.*, No. 4160, 1978 WL 21430, 198 U.S.P.Q. 353, 368 (D. Del. 1978) (a reasonable royalty "must be determined solely on the basis of the submitted evidence and upon an evaluation of the factors that could affect the reasonable royalty, not upon mere conjecture") (citation omitted).

55. In fact, a patentee may not collect a reasonable royalty beyond the amount it has proven in the trial record. *See Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 895 F.2d 1403 (Fed. Cir. 1990) ("[i]n view of the sparse and totally inadequate record [plaintiff] created at trial, we cannot say that [plaintiff] proved entitlement to an award greater than $10,000"). Courts may even deny a reasonable royalty award altogether if a patentee fails to adduce relevant evidence on which the court may base a reasonable royalty award. *See Devex Corp. v. General Motors Corp.*, 667 F.2d 347, 362-63 (3d Cir. 1981), *aff'd on other grounds*, 461 U.S. 648 (1983); *Transclean*, 290 F.3d at 1377; *W.L. Gore*, 198 U.S.P.Q. at 370; *KEG Techs., Inc. v. Laimer*, 436 F. Supp. 2d 1364, 1370-71 (N.D. Ga. 2006).

56. Calculation of a reasonable royalty rate is often "based upon a hypothetical negotiation between the patentee and the infringer when the infringement began." *Unisplay*, 69

F.3d at 517; *see also Micro Chem. Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1393 (Fed. Cir. 2003). Factors relevant in such a reasonable royalty determination are set out in *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir.), *cert. denied*, 404 U.S. 870 (1971). "Despite the fact that [the] hypothetical negotiation factor is just one of the factors on the [*Georgia-Pacific* factor] list, the hypothetical negotiation is a method for incorporating the other factors in order to arrive at a reasonable royalty rate." *Studiengesellschaft Kohle m.b.H. v. Dart Indus., Inc.*, 666 F. Supp. 674, 680 (D. Del. 1987). Both parties' experts agreed that the hypothetical negotiation is the most important factor to consider in this case. *See* Davis, Tr. (D) 277:14-278:2, A-15277:14–15278:2; Teece, Tr. (D) 461:21-462:3, A-15461:21–15462:3.

(2) Novozymes' Proposed 25% Royalty Is Based on Unreliable and/or Misapplied Methodologies, and Ignores the Great Weight of the Evidence

57. Novozymes proposed a 25% reasonable royalty. In support thereof, Novozymes' expert Ms. Davis relied on and synthesized two infrequently used approaches — the "Rule of Thumb" and the "Analytical Method." Both are methodologies of last resort, used by experts when "other available information that informs the view as to what [a] reasonable royalty rate should be" is lacking. Davis, Tr. (D) 550:15-551:3, A-15550:15–15551:3; Teece, Tr. (D) 473:8-474:16, A-15473:8–15474:16. Novozymes' use of these theories is flawed, such that Ms. Davis' analysis cannot result in establishing a reasonable royalty to a reasonable certainty. Ms. Davis' failure to consider substantial evidence from other, more reliable party sources, is further proof that the 25% reasonable royalty figure is unsound.

(a) *Ms. Davis misapplied the "Rule of Thumb"*

58. With regard to the "Rule of Thumb," there is "no real deep analytical justification" for this methodology, rather, it tends to be used when there is a lack of transactional data. Teece, Tr. (D) 473:8-474:16, A-15473:8–15474:16. In such situations, the Rule of Thumb is used to apportion the profit that would be generated from use of the patented technology, the

licensee receiving 75% of the profit and the licensor receiving 25%. *See id.* All important to this analysis, however, is its proper application; the 75% / 25% split must be applied to incremental profit, *i.e.*, the profit margin attributable to the invention, not simply to the net profit margin. *See id.*, 461:9-20, A-15461:9-20 ("an incremental profitability analysis should underpin any analysis of reasonable royalty"), 475:20-25, A-15475:20-25.

59. In applying the Rule of Thumb, Ms. Davis' conclusions heavily rested on her assumption that Genencor had no commercially-viable non-infringing alternatives. *See* Davis, Tr. (D) 306:8-307:5, A-15306:8–15307:5. This has two-implications for her analysis: (1) all of Genencor's profits from its sale of SPEZYME® Ethyl in the U.S. fuel ethanol industry would have been lost if it had not taken a license from Novozymes; and (2) but for infringement, NZNA would have made 100% of the sales actually made by Genencor. Thus, Ms. Davis simply applied the 75/25 split to Genencor's net profit margin on SPEZYME® Ethyl, rather than on incremental profits (profits from SPEZYME® Ethyl compared to an alternative). *See* Davis, Tr. (D) 290:14-291:14, A-15290:14–15291:14.

60. This assumption is wrong. Genencor did, and continues to have commercially-viable non-infringing alternatives, including SPEZYME® Fred, SPEZYME® HPA and SPEZYME® XTRA. (GCL 35.) As a result, Genencor would have earned some profits from pursuing such alternatives, so the relative measure of their incremental profit is the difference between the profits they actually made and the profits that they would have made in the "but for" world using one of those alternative(s). *See* Teece, Tr. (D) 464:19-465:7, A-15464:19–15465:7. As Dr. Teece testified, "[a]s a matter of economics, you are not going to pay more for technology than you have to.... [I]f you have a good alternative, that is going to affect the bargaining range." *Id.* at 464:19-22, A-15464:19-22. Further, NZNA would have lost sales in the "but for" world to those alternatives, and Novozymes would have had to take that possibility into account when entering into a negotiation with Genencor for a license to the '031 Patent. *See id.*, 466:17-467:11, A-15466:17–15467:11.

(b) *The Analytical Method is unreliable*

61. With regard to the Analytical Method, this method purportedly compares the profits on the infringer's accused sales with "normal" profits on other similar products. The difference between the two is set as the royalty to be paid to the patentee. *See* Teece, Tr. (D) 480:19-481:1, A-15480:19–15481:1.

62. There are at least two problems with the Analytical Method, such that it is simply unreliable. *See* Teece, Tr. (D) 484:23-24, A-15484:23-24. First, the Analytical Method assumes that the best non-infringing alternative available to the infringer would only allow the infringer to earn the "normal" or (benchmark) profit margin on incremental sales. But from an economic perspective, what matters is the infringer's next-best non-infringing alternative, not what is the "normal margin." *See* Teece, Tr. (D) 480:19-481:1, A-15480:19–15481:1, 482:23-483:1, A-15482:23–15483:1, 483:25-484:24, A-15483:25–15484:24. Second, the Analytical Method is extremely sensitive to the time period one chooses for the data. *See* Teece, Tr. (D) 482:5-484:4, A-15482:5–15483:4.

63. Dr. Teece demonstrated the flaws in the Analytical Method, set forth in TE 770, A-16868. Here he replicated the analysis Ms. Davis undertook, but also applied it to other Genencor products as well as to another time period (the 12 month total that SPEZYME® Ethyl was actually on the market vs. the artificial 6 month time period that Ms. Davis chose). *See id.* Ms. Davis compared the net profit margin on SPEZYME® Ethyl to SPEZYME® Fred over a six month period and came up with a 27% reasonable royalty (subtracting the net profit margin of Fred from the net profit margin of Ethyl). However, Dr. Teece showed that when one simply adjusts for a 12 month time period, that reasonably royalty determination drops to 13%. Moreover, when one compares the net profit margin on SPEZYME® Ethyl to the available data on SPEZYME® XTRA (the next-best non-infringing alternative), that figure falls to 7%. *See id.* Thus, based on these sensitivities, this method is unreliable, lacking in sound economic and factual predicates, and the Court will not rely on this evidence. *See Riles*, 298 F.3d at 1311.

(3) Novozymes Does Not Meet Its Burden to Establish a Reasonable Royalty Figure

64. The methods on which Novozymes relies to support a 25% royalty are unreliable and/or not properly applied. Thus, Novozymes has not met its burden to prove a reasonable royalty amount, and none, certainly not 25%, should be awarded. *See Transclean*, 290 F.3d at 1377; *Riles*, 298 F.3d at 1311. This Court declines to award Novozymes even a reasonable royalty because of its lack of proof. *See W.L. Gore,* 198 U.S.P.Q. at 367-68 (denying a reasonable royalty award for lack of evidence); *Devex*, 667 F.2d at 363 (stating that while "[t]he statute [35 U.S.C. § 284] require[ed] the award of a reasonable royalty, . . . to argue that this requirement exists even in the absence of any evidence from which a court may derive a reasonable royalty goes beyond the possible meaning of the statute."); *KEG Techs.*, 436 F. Supp. 2d at 1370-71 (denying a reasonable royalty award for lack of evidence); *Rates Tech. Inc. v. Redfish Telemetrix, Inc.*, No. 99-CV-4644 (RR), 2001 WL 1825854, at *4 (E.D.N.Y. Dec. 19, 2001) (stating that "where the patent holder presents little or no satisfactory evidence upon which the court could determine a reasonable royalty, the court may choose not to grant any royalty").

(4) If a Royalty Is to Be Awarded, an 8% Royalty Is Consistent with the Evidence

65. Alternatively, despite Novozymes' failure of proof, this Court has decided to award a reasonable royalty. Based on the evidence presented at trial, as well as that relied on by Dr. Teece in support of his reasonable royalty analysis, this Court finds that an 8% reasonable royalty is consistent with the evidence.

66. First, Dr. Teece determined that if one properly applies the Rule of Thumb methodology, estimating Genencor's "but for" profits based on "but for" sales of Genencor's alternative products, a 25% rule of thumb reasonable royalty would be between 5.67% and 8.34% depending on SPEZYME® XTRA's availability. *See* Teece, Tr. (D) 471:13-472:19, A-15471:13–15472:19, 476:9-480:7, A-15476:9–15480:7; TE 764, A-16864; TE 769, A-16866.

67. Second, the one license agreement between the parties in the record, the Filamentous Fungi License Agreement, sets forth a rate of between 5% and 8%. Although this agreement covers technology for the pharmaceutical rather than grain processing industry, it is relevant to this case because it evidences what the parties had thought was a reasonable range of royalty rates for fields at least as important as fuel ethanol. Moreover, the royalty established in the license is based on "royalty rates typically paid for comparable products in comparable markets." *See* TE 339 at GCOR 171759, A-16125. (GFF 40.)

68. Third, all of the additional material that Dr. Teece relied on as "a check on whether or not the basic methodologies and findings [of his reasonable royalty calculation] are correct" support an 8% royalty figure. *See* Teece, Tr. (D) 470:16-19, A-15470:16-19. Specifically, the numerous license agreements that each side offered into evidence during discovery, including many between Novozymes and Genencor, had royalty rates that varied from 0% up to 4%. *See* Teece, Tr. (D) 485:22-486:8, A-15485:22–15486:8; TE 771, A-16870. Novozymes' employee Marianne Nonboe testified at her deposition that the highest royalty rate in a Novozymes' outlicense was 8%. *See* Teece, Tr. (D) 486:9-16, A-15486:9-16; TE 771, A-16870. A recent study by Mark Lemley of Stanford University and Robert Shapiro of the University of California, Berkeley that looks at adjudicated royalty rates, broken down by industry, notes that that in the biotechnology industry, the average royalty rate was 9.6% and in the chemistry industry, it was 11.98%. *See* Teece, Tr. (D) 486:17-487:6, A-15486:17–15487:6; TE 771, A-16870. The Licensing Economic Review states that the overall industry average was a 6.7% royalty, with a 4.7% royalty for the chemicals industry, a 5.0% royalty for energy & environment, 4.0% for food processing and 7.5% for pharmaceutical & biotechnology. *See* Teece, Tr. (D) 490:8-14, A-15490:8-14; TE 771, A-16870. Finally, a commissioned report from the "Royalty Source" database, with a request to look at catalyst related technologies in the chemical industry concludes that royalties in this industry ranged from 1.0% to 8.0%. *See* Teece, Tr. (D) 490:15-25, A-15490:15-25; TE 771, A-16870. (GFF 41-42.)

69. The great weight of the evidence supports an 8% royalty for the U.S. dry mill fuel ethanol market. Therefore this Court determines that an 8% reasonable royalty award is the proper measure of damages in this case.

70. An 8% royalty on all sales of SPEZYME® Ethyl during the accounting period results in $1,669,085 owed royalties.

D. Novozymes Is Not Entitled to Enhanced Damages

(1) Governing Law

71. Determining whether to award enhanced damages is a two-step process. First, the fact finder must decide whether an infringer is guilty of conduct, such as willful infringement, that justifies an award of increased damages. The court must determine whether, and to what extent, if any, it will increase the damages awarded. Both assessments-was there culpable conduct and, if so, whether enhancement is warranted—must be evaluated under the totality of the circumstances. *See Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1570 (Fed. Cir. 1996); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 948 F.2d 1573, 1576 (Fed. Cir. 1991); *Tristrata Tech., Inc. v. ICN Pharms., Inc.*, 314 F. Supp. 2d 356, 360 (D. Del. 2004).

(2) Genencor's Infringement Was Not Willful

72. In this case, Novozymes alleges that Genencor's infringement is willful. Considering the totality of the circumstances, however, this Court finds that Genencor's infringement was not willful.

73. Willfulness is a question of fact, as to which the patentee bears the burden of proof by clear and convincing evidence. *See Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1368 (Fed. Cir. 2006); *Oxford Gene Tech. Ltd. v. Mergen Ltd.*, 345 F. Supp. 2d 431, 442 (D. Del. 2004). The patentee "must present threshold evidence of culpable behavior," *i.e.*, reckless disregard for the patentee's rights. *Golden Blount*, 438 F.3d at 1368 (quoting *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1332 (Fed. Cir. 2004)) (affirming no willful infringement where patentee failed to produce in its case-in-chief any evidence of willfulness despite accused

infringer's stipulation that it had knowledge of the asserted patents). An "accused infringer's knowledge of [the] asserted patent, without more, is insufficient to support a conclusion of willfulness." *Norian*, 363 F.3d at 1332-33; *Allen Archery, Inc. v. Browning Mfg. Co.*, 819 F.2d 1087, 1099 (Fed. Cir. 1987) (affirming no willful infringement despite infringer's knowledge of the patent, where infringer acted with a good faith belief that the patent claims were invalid and the infringement was not "calculated"). When considering allegations of willful patent infringement, courts look to the "totality of the circumstances," including: whether the infringer deliberately copied the ideas or design of another; whether the infringer, when it knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that the patent was invalid or not infringed; the infringer's litigation behavior; and the closeness of the case. *See Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1342-44 (Fed. Cir. 2004) (en banc); *Biotec Biologische Naturverpackungen GmbH v. Biocorp., Inc.*, 249 F.3d 1341, 1356 (Fed. Cir. 2001).

74. Novozymes does not allege that Genencor directly copied the '031 Patent or that there was any litigation misconduct on the part of Genencor. To the extent that Novozymes implies that Genencor copied the '031 Patent or the Liquozyme Products, this is a factual impossibility. There are no products that practice the '031 Patent and Genencor was not aware of the '031 Patent's issued claims upon the development and launch of the SPEZYME® Ethyl. Thus, whether Genencor willfully infringed depends solely on whether it possessed a good faith belief that its conduct was lawful.

75. Genencor has proven a good faith belief in the legality of its conduct based on the opinion of Genencor scientists and an opinion of counsel on a related Novozymes' patent that suggested that the prior art rendered the '031 Patent obvious. Specifically, Genencor understood that SPEZYME® Ethyl was "genetically modified to have the two amino acids at the positions defined by Suzuki deleted." Crabb, Tr. (D) 383:7-10, A-15383:7-10, 385:21-25, A-15385:21-25; TE 228, A-16000–16015. Dr. Crabb testified that Genencor believed "from a scientific

standpoint, anyone that has read that paper [Suzuki] would choose to make those deletions if they wanted to try and improve the thermostability of *bacillus stearothermophilus*." Crabb, Tr. (L) 41:4-7, A-5041:4-7; TE 115, A-8233–8238. (GFF 43-46.) Moreover, Genencor's good faith belief was bolstered by an opinion of counsel regarding the '038 Patent, that it could not have valid claims with scope that were based on the Suzuki deletions, *see* Crabb, Tr. (D) 219:19-25, A-15218:19-25, as well as the subsequent discovery of another prior art reference, Machius '95. (GFF 47-48.)

76. No attorney opinion is required to defeat willful infringement. *See Knorr-Bremse*, 383 F.3d at 1342-44; *Nickson Indus., Inc. v. Rol Mfg. Co.*, 847 F.2d 795, 799-800 (Fed. Cir. 1988) (affirming no willful infringement despite no opinion of counsel where infringer thought that many of the patented device's features were covered by prior art and patentee failed to show evidence in the record that would give an inference of bad faith). Reliance on the opinion of an employee with technical expertise, coupled with close questions of fact, may support a finding of no willful infringement. *See id.*; *Union Carbide,* 425 F.3d at 1380; *Biotec,* 249 F.3d at 1355-56; *Rolls-Royce Ltd. v. GTE Valeron Corp.*, 800 F.2d 1101, 1110 (Fed. Cir. 1986) (affirming no willful infringement where infringer had not copied the patented invention, its engineers believed there would be no infringement problem because of differences in the products, and the patentees' expert conceded that the infringer made bona fide "design around" efforts).

77. Additionally, not only did Genencor possess the required good faith belief upon learning of the patent claims, but Genencor al so went on to make strong, albeit ultimately unsuccessful, arguments regarding infringement, invalidity and unenforceability. The strength of these arguments, and thus the reasonableness of Genencor's good faith belief in the invalidity of the '031 Patent, is evidenced by: (1) this Court's specific finding that Genencor "successfully raised a substantial question as to invalidity" in its subsequent denial of Novozymes' preliminary injunction motion, *see* Memorandum Order at 4, D.I. 68; and (2) this Court's conclusion of law

that the '031 Patent was rendered *prima facie* obvious in light of the prior art, but for Novozymes' evidence of unexpected results, which was based in part on its finding of fact that the PTO Examiner had initially found the "'031 Patent's claims obvious in light of Suzuki," *see* FF (Liability) 33, A-10014 and CL (Liability) 60-62, A-10045–10046.

78. Novozymes argues that Genencor's continued sales of SPEZYME® Ethyl after receiving notice of the '031 Patent claims is proof of willful infringement. This misconstrues the repeated holdings of the Federal Circuit: there is no "universal rule that to avoid willfulness one must cease manufacture of a product immediately upon learning of a patent. … Exercising due care, a party may continue to manufacture and may present what in good faith it believes to be a legitimate defense without risk of being found on that basis alone a willful infringer. That such a defense proves unsuccessful does not establish that infringement was willful." *Gustafson, Inc. v. Intersystems Indus. Prods., Inc.*, 897 F.2d 508, 510-11 (Fed. Cir. 1990) (citation omitted). *See also Union Carbide*, 425 F.3d at 1380-81; *Jurgens*, 80 F.3d at 1571; *Allen Archery*, 819 F.2d at 1099; *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1235-36 (Fed. Cir. 1985) (reversing finding of willful infringement where infringer designed and began marketing its product before the asserted patent issued, and its noninfringement and validity defenses were nonfrivolous and asserted in good faith). There is no doubt that Genencor's defenses were non-frivolous.

79. Based on Genencor's response to the '031 Patent, this Court finds that Novozymes has failed to prove by clear and convincing evidence that Genencor willfully infringed the '031 Patent. Rather, this case is simply the sort of "fair fight" allowed under the patent laws. *See State Indus.*, 751 F.2d at 1235-36 "[W]e see the familiar picture of competitors competing, one trying to match a new product of the other with a new product of its own, not copied but doing the same job, and the other manipulating its secret pending patent application to cover the functionally competitive structure it did not think of but deems to embody its proprietary 'inventive concept.' This is a classic commercial gamesmanship under the patent system but it is not the kind of behavior courts have categorized in the past as willful

infringement.... The world of competition is full of 'fair fights,' of which this suit seems to be one. Because Genencor's infringement was not willful, no enhancement of damages is proper.

(3) Enhancement Is Not Warranted

80. Even if this Court finds Genencor's infringement was willful, it should not enhance the damages award. "Courts should not automatically enhance damages following a finding of willful infringement because punitive damage penalties deter innovation. Accordingly, punitive damage awards should only be given in cases where conduct is so obnoxious as clearly to call for them." *Tristrata*, 314 F. Supp. 2d at 360 (citation omitted); *see also Transclean*, 290 F.3d at 1377-78; *Mentor H/S, Inc v. Medical Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (affirming no enhanced damages despite willful infringement where issue of willfulness was 'close' and evidence of willfulness was "not as strong as it could have been and was not of the weight and strength that would support the imposition of enhanced damages") (citation omitted); *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259 (Fed. Cir. 1999) (affirming no enhanced damages because defendant mounted a good faith and substantial challenge to the existence of infringement, did not copy the invention, and did not engage in misconduct during litigation); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992). In fact, "[a]n infringer may generally avoid enhanced damages with a meritorious good faith defense and a substantial challenge to infringement." *Delta-X Corp. v. Baker Hughes Prod. Tools, Inc.*, 984 F.2d 410, 413 (Fed. Cir. 1993) (affirming denial of enhanced damages despite jury's willfulness finding, because record did not show that infringer copied the patent or intentionally infringed, record showed that infringer, even though it did not obtain an opinion of counsel, had a good faith belief that it did not infringe, and the infringer mounted a substantial challenge to the infringement charge); *see also Jurgens*, 80 F.3d at 1571 ("Even if a party is subsequently found to be infringing another's patent despite its investigations, it will be liable only for compensatory damages, if it performed its affirmative duty in good faith."); *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20 (Fed. Cir. 1984) ("[a]n increase

in damages for willfulness ... is generally inappropriate when the infringer mounts a good faith and substantial challenge to the existence of infringement").

81. This is not a case involving deliberate copying, unethical conduct during litigation, concealment of misconduct or any other "obnoxious" behavior that gives rise to enhanced damages. For example, as soon as this Court issued its liability opinion (and without having an injunction in place), Genencor voluntarily withdrew SPEZYME® Ethyl from the market. *See* Beto, Tr. (D) 420:20-421:20, A-15420:20–15421:20. (GFF 36.) Genencor's good faith belief in the invalidity of the '031 Patent, the substantial defenses it put forward during the litigation and the closeness of the case all demonstrate that enhancing damages is inappropriate. *See Ajinomoto Co. v. Archer-Daniels-Midland Co.*, 228 F.3d 1338, 1351-52 (Fed. Cir. 2000) (affirming denial of enhanced damages, even though infringer knew of patent and did not obtain advice of counsel, where infringer mounted "substantial, albeit unsuccessful, challenge on the issues of validity and infringement," and there was no bad faith).

(4) <u>This Is Not an Exceptional Case and Attorneys' Fees Are Not Warranted</u>

82. "The court in exceptional cases may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. Novozymes was the prevailing party in this case. During the liability phase, this Court found that Genencor's SPEZYME® Ethyl product contained all the elements of the asserted claims of the '031 Patent. *See* CL 38, 44, 48, 51. This Court also found that the '031 Patent was not invalid for obviousness or lack of enablement; *see* CL 57, 63, 77, 81, 87, and that the '031 Patent was enforceable, *see* CL 101, 106, 109.

83. "The determination of whether a case is exceptional and, thus, eligible for an award of attorney fees under [section] 285 is a two-step process. First, the district court must determine whether a case is exceptional. . . . After determining that a case is exceptional, the district court must determine whether attorney fees are appropriate." *Phonometrics, Inc. v. Westin Hotel Co.*, 350 F.3d 1242, 1245 (Fed. Cir. 2003). To award attorneys' fees under 25

U.S.C. § 285 requires that "the exceptional nature of the case . . . be established by clear and convincing evidence." *Callaway Golf Co. v. Slazenger*, 384 F. Supp. 2d 735, 746 (D. Del. 2005).

84. "The prevailing party may prove the existence of an exceptional case by showing: inequitable conduct before the PTO; litigation misconduct; vexatious, unjustified, and otherwise bad faith litigation; a frivolous suit or willful infringement." *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1034 (Fed. Cir. 2002) (citing *Hoffmann-La Roche Inc. v. Invamed Inc.*, 213 F.3d 1359, 1365 (Fed. Cir. 2000)). Novozymes has failed to show by clear and convincing evidence that Genencor willfully infringed the '031 Patent. Thus, this Court finds that this is not an exceptional case that would warrant an award of attorneys' fees.

85. Even if this Court were to find that Genencor willfully infringed the '031 Patent, an award of attorney fees is not justified because Genencor's litigation behavior was at all times reasonable and undertaken in good faith. "Even an exceptional case does not require in all circumstances the award of attorney fees." *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 201 (Fed. Cir. 1986). "In the context of fee awards to prevailing accused infringers, we have observed that § 285 is limited to circumstances in which it is necessary to prevent 'a gross injustice' to the accused infringer." *Forest Labs., Inc. v. Abbott Labs.*, 339 F.3d 1324, 1329 (Fed. Cir. 2003) (internal citation omitted). To determine whether attorneys' fees are warranted, a trial judge should "weigh considerations such as the closeness of the case, the tactics of counsel, the conduct of the parties, and any other factors that may contribute to a fair allocation of the burdens of litigation as between winner and loser." *S.C. Johnson*, 781 F.2d at 201; *see also Superior Fireplace Co. v. Majestic Prods. Co.*, 270 F.3d 1358, 1378 (Fed. Cir. 2001) (quoting *National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1197 (Fed. Cir. 1996) (the "decision to award attorneys' fees, *vel non,* is discretionary and 'permits the judge to weigh intangible as well tangible factors: the degree of culpability of the infringer, the closeness of the question, litigation behavior, and any other factors whereby fee shifting may serve as an instrument of justice'").

86. This was a close case, particularly in light of this Court's initial finding that the '031 Patent was *prima facie obvious* given the prior art. *See* FF (Liability) 33; A-10014, CL (Liability) 60-62, A-10045–10046. Further, even were the Court to have concluded that Novozymes met its burden of proof as to willful infringement, which it did not, that would not mean the case was "open and shut" from the start. A finding of willful infringement does not automatically mean that an award of fees is appropriate. *See Juicy Whip, Inc. v. Orange Bang, Inc.*, 382 F.3d 1367, 1373 (Fed. Cir. 2004) (affirming district court decision to deny attorneys' fees request despite finding of willful infringement, stating that this ruling was in accord with clear precedent that "a finding of willful infringement merely authorizes, but does not mandate, an award of increased damages") (citation omitted); *Electro Sci. Indus., Inc. v. General Scanning, Inc.*, 247 F.3d 1341, 1353 (Fed. Cir. 2001) (same, stating that "[e]ven after a finding that a case is exceptional, the district court may decline to award attorneys' fees").

87. As to the tactics of counsel, the manner in which counsel for Genencor litigated this case cannot be characterized as warranting fee shifting. To the contrary, the conduct of defense counsel was at all times reasonable, and counsel did not employ improper litigation tactics.

88. Thus, even if the Court had concluded that Genencor willfully infringed the '031 Patent and found that this is an exceptional case, the Court would decline to award attorneys' fees to Novozymes; requiring each side to bear its own costs and fees would have been "a fair allocation of the burdens of litigation as between winner and loser." *S.C. Johnson*, 781 F.2d at 201.

E. Novozymes' Motion For Permanent Injunction Should Be Denied

89. The Supreme Court recently held that the Federal Circuit "erred in its categorical grant" of injunctions in previous patent cases. *eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1841 (2006). Rather, in order to receive a permanent injunction, Novozymes has the burden of proving:

> (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.

eBay, 126 S. Ct. at 1839. The Court particularly noted that the Patent Act does not *require* issuance of injunctions upon findings of infringement, but rather specifies only that injunctions "*may*" issue "in accordance with the principles of equity." *Id.* at 1839-40 (emphasis added).

90. The traditional equities disfavor patentees who do not exploit their patent at all—that is, patentees who neither practice their patents, sell competing products, nor license the patents for profit. *See eBay*, 126 S. Ct. at 1840. In fact, *every* post-*eBay* district court that has faced a patentee who did not exploit its patent denied the patentee an injunction. *See Voda v. Cordis Corp.*, No. CIV-03-1512-L, 2006 WL 2570614, at *5 (W.D. Okla. Sept. 5, 2006); *Paice LLC v. Toyota Motor Corp.*, No. 2:04-CV-211-DF, 2006 WL 2385139, at *1 (E.D. Tex. Aug. 16, 2006); *z4 Techs., Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 439 (E.D. Tex. 2006); *Finisar Corp. v. The DirecTV Group, Inc.*, No. 1:05-CV-264, slip op. at 1 (E.D. Tex. July 7, 2006), referencing *Finisar* July 6, 2006 Hearing Transcript at 123:4-126:20.

(1) Novozymes Has Not Proven Irreparable Harm

91. To obtain an injunction, a patentee "must demonstrate . . . that it has suffered an irreparable injury." *eBay*, 126 S. Ct. at 1839. The right to exclude alone is not sufficient to support a finding of injunctive relief. *See id.* at 1840 (rejecting the Federal Circuit's reasoning that the "statutory right to exclude alone justifies its general rule in favor of permanent injunctive relief," because "creation of a right is distinct from the provision of remedies for violations of that right").

92. Under the clarified standard of *eBay*, patentees who do not exploit their own patents have been unable to show irreparable harm. *See Voda*, 2006 WL 2570614, at *5-6 (patentee had not demonstrated harm where all of the alleged harm was done to patentee's

licensee, a non-party to the case); *Paice*, 2006 WL 2385139, at *4-5 (patentee did not suffer irreparable harm where it did not practice the patent and a compulsory license would not harm patentee's attempts to license its technology in the future); *Finisar* (Hearing Tr. at 123–24) (patentee was not injured where the patentee never "made the slightest effort to use the patent"); *z4 Techs.*, 434 F. Supp. 2d at 440-41 (patentee had not been irreparably injured where it has not exploited its patent because, should a compulsory license issue, "[t]he only entity [the patentee] is possibly prevented from marketing, selling or licensing its technology to absent an injunction is [the infringer]").

93. The Supreme Court has held that presuming irreparable harm "is contrary to traditional equitable principles." *Amoco Prod. Co. v. Village of Gambell*, 480 U.S. 531, 544-45 (1987). Such a presumption should not be applied during a permanent injunction analysis in patent cases. *See eBay*, 126 S. Ct. at 1841; *Paice*, 2006 WL 2385139, at *4 ("no presumption of irreparable harm should automatically follow from a finding of infringement"); *z4 Techs.*, 434 F. Supp. 2d at 440 (presumption of irreparable harm is "not in line with the Supreme Court's holding, which mandates that courts balance the traditional principles of equity when considering the remedy of a permanent injunction in patent cases.") Novozymes cannot meet its burden because its only proven harm here is to the right to exclude, which is not irreparable harm. *See eBay*, 126 S. Ct. at 1840 (rejecting the Federal Circuit's reasoning that the "statutory right to exclude alone justifies its general rule in favor of permanent injunctive relief").

94. Irreparable harm may not be presumed simply upon a finding of validity and infringement, but must be proved on the individual facts of a case. *See eBay*, 126 S. Ct. at 1841 (holding the Federal Circuit erred in its holding that "injunctions should be denied only in the 'unusual' case . . . to protect he public interest") (citation omitted); *Paice*, 2006 WL 2385139, at *4 (stating that "no presumption of irreparable harm should automatically follow from a finding of infringement"); *z4 Techs.*, 434 F. Supp. 2d at 440. In fact, a presumption of irreparable harm is simply "not in line with the Supreme Court's holding, which mandates that courts balance the

traditional principles of equity when considering the remedy of a permanent injunction in patent cases." *z4 Techs.*, 434 F. Supp. 2d at 440.

(a) *Novozymes has not met its burden of proving that it will be irreparably harmed if an injunction is denied.*

95. Novozymes admitted that it "does not manufacture or sell any products that would be encompassed by any of the claims of the '031 Patent," and that it does not itself manufacture or sell products which compete with SPEZYME® Ethyl. *See* TE 741 at 8, A-16837. (GFF 12.) While NZNA does sell products that have competed with SPEZYME® Ethyl, patentees cannot establish irreparable harm for purposes of an injunction by pointing to harm allegedly suffered by non-party licensees. *See Voda*, 2006 WL 2570614, at *5-6.

96. Further, Novozymes does not have a licensing program for the '031 Patent that would be damaged by sales of SPEZYME® Ethyl. Novozymes has currently granted only one license to practice the '031 Patent—a non-exclusive license to NZNA. *See* Olofson, Tr. (D) 178:20-179:4, A-15177:20–15178:4; TE 741 at 9, A-16838. However, Novozymes receives no compensation for including the '031 Patent in that license—the license only provides for royalty payments on products that make use of the licensed technology, something that no NZNA product does. *See* Olofson, Tr. (D) 176:13-16, A-15175:13-16; TE 240, A-16028–A-16033. Further, Novozymes has made clear that it is not seeking to license the '031 Patent further, but rather is merely retaining the right to license in case of a fairly rare need, such as if a customer should need a license for a joint development agreement. *See* Meyer Tr. 16:19-17:10, A-15015:19–15016:10, 46:17-47:25, A-15045:17–15046:25. (GFF 10.)

97. Thus, because this Court is awarding Novozymes a reasonable royalty, the only harm Novozymes would suffer without an injunction is loss of its right to exclude. Since *eBay*, similarly situated patentees who do not exploit their own patents have been unable to show irreparable harm. In fact, *every* post-*eBay* trial court that has faced a patentee who did not exploit its patent denied the patentee an injunction. *See Voda*, 2006 WL 2570614, at *5-6 (patentee had

not demonstrated harm where all of the alleged harm was done to patentee's licensee, a non-party to the case); *Paice*, 2006 WL 2385139, at *1, 4-5 (patentee did not suffer irreparable harm where it did not practice the patent and a compulsory license would not harm patentee's attempts to license its technology in the future); *Finisar Corp. v. The DirecTV Group, Inc.*, No. 1:05-CV-264, slip op. at 1 (E.D. Tex. July, 7, 2006), referencing *Finisar* July 6, 2006 Hearing Transcript at 123:4-126:20 (patentee was not injured where the patentee never "made the slightest effort to ever use the patent"); *z4 Techs.*, 434 F. Supp. 2d at 440-41 (patentee had not been irreparably injured where it has not exploited its patent because, should a compulsory license issue, "[t]he only entity [the patentee] is possibly prevented from marketing, selling or licensing its technology to absent an injunction is [the infringer]"). In stark contrast, in each of the post-*eBay* patent cases where an injunction has been awarded, the patentee exploited the patent, by practicing and/or licensing it for profit. *See 3M Innovative Props. Co. v. Avery Dennison Corp.*, No. 01-1781 (JRT/FLN), 2006 WL 2735499, at *1 (D. Minn. Sept. 25, 2006) (patentee who marketed product with patented features suffered irreparable injury from infringement, compulsory license would not adequately compensate for injury) (details of patentee's product discussed in *3M Innovative Props. Co. v. Avery Dennison Corp.*, No. 01-1781 (DSD/FLN), 2002 WL 31628395, at *2 (D. Minn. Oct. 19, 2002), *vacated by* 350 F.3d 1365 (Fed. Cir. 2003)); *Litecubes, L.L.C. v. Northern Light Prods.*, No. 4:04CV00485 ERW, 2006 U.S. Dist. LEXIS 60575, at *31-32 (E.D. Mo. Aug. 25, 2006) (patentee who developed and sold patented device suffered irreparable injury because potential customers bought defendant's infringing products instead of patentee's product); *Rosco, Inc. v. Mirror Lite Co.*, No. CV-96-5658, 2006 WL 2844400, at *5 (E.D.N.Y. Sept. 29, 2006) (finding permanent injunction necessary to adequately compensate patentee who manufactured patented product and distinguishing cases in which a compulsory license could adequately compensate plaintiff who did not practice patent); *Smith & Nephew, Inc. v. Synthes Stratec, Inc.*, No. 02-2873, slip op. at 5-7 (W.D. Tenn. Sept. 28, 2006) (patentee who sold patented device suffered irreparable injury in the form of "decreased ability to compete in the market" due to

defendant's sale of infringing devices); *Wald v. Mudhopper Oilfield Servs.*, No. Civ-04-1693-C, 2006 WL 2128851, at *5 (W.D. Okla. July 27, 2006) (patentee who sold patented device suffered irreparable harm in the form of lost market share and reputation due to defendant's sale of infringing products); *TiVo Inc. v. EchoStar Commc'ns Corp.*, 446 F. Supp. 2d 664, 669-70 (E. D. Tex. 2006), injunction stayed by *TiVo Inc. v. EchoStar Commc'ns Corp.*, No. 2006-1574, slip op. (Fed. Cir. Oct. 3, 2006) (patentee, whose primary product exploited the patent-in-suit, suffered irreparable harm in the form of loss of market share and customer based due to defendant's sale of infringing product); *Black & Decker Inc. v. Robert Bosch Tool Corp.*, No. 04 C 7955, 2006 WL 3446144, at *4 (N.D. Ill. Nov. 29, 2006)) (patentee's patented product lost market share to the infringing products) (details of patentee's product discussed in *Black & Decker Inc. v. Robert Bosch Tool Corp.*, No. 04 C 7955, 2006 WL 3069544, at **1-2, 5-6 (N.D. Ill. Oct. 24, 2006).

98. Further, to the extent that Novozymes points to specific loss of good will, loss of sales or price erosion that it alleges NZNA lost, Novozymes has not proven that those damages were caused by infringing sales of SPEZYME® Ethyl. Rather, any such harms NZNA has experienced began even before SPEZYME® Ethyl was launched, based on legal competition before the '031 Patent issued and with Genencor's other products. *See* Faller, Tr. (D) 103:2-105:1, A-15102:2–15104:1, 137:15-21, A-15136:15-21, 149:25-150:12, A-15148:25–15149:12, 152:24-153:25, A-15151:24–15152:25, 155:1-19, A-15154:1-19; TE 692, A-16672. NZNA's customers were critical drivers of price declines; these typical business pressures, and the use of buying groups, contributed to NZNA's woes. *See* Faller, Tr. (D) 155:1-19, A-15154:1-19. Many customers also chose to purchase a product from Genencor, not because of the technology of the '031 Patent, but because of Genencor's superior customer service and related issues, and/or chose not to purchase the Liquozyme Products because of displeasure with NZNA. *See* Faller, Tr. (D) 132:20-134:7, A-15132:20–15133:7, 140:16-142:2, A-15139:16–15141:2, 142:3-23, A-15141:3-23; TE 692, A-16672 at NV-0096787 (customer stating he "refuses to do business with a company that conducts itself like Novozymes" around January 2005). Finally, Novozymes fails

to show that these alleged harms are irreparable. For example, despite claiming irreparable lost sales, Novozymes' sales went up and it won back business after SPEZYME® Ethyl was on the market. *See* Faller, Tr. (D) 156:7-25, A-15155:7-25. (GFF 21, 23-25.)

(2) Novozymes Has Adequate Remedies at Law

99. To obtain an injunction, a patentee "must demonstrate . . . that remedies available at law, such as monetary damages, are inadequate to compensate for that injury." *eBay*, 126 S. Ct. at 1839. Any actual injuries Novozymes may suffer are adequately compensated through monetary damages, as there are well-established methodologies that economists employ to quantify these types of harms. In fact, Novozymes' expert sought to quantify the purported lost market share and price erosion. *See* Davis, Tr. (D) 297:10-298:21, A-15297:10–15298:21. While the parties may disagree about the proper amount for such awards, both agree that such damages are calculable.

100. Monetary relief is an adequate remedy at law in cases such as this case where the only harm suffered is the right to exclude. *See Voda*, 2006 WL 2570614, at *6 ("[t]his argument, however, is simply the other side of the right-to-exclude coin and is not sufficient to justify granting injunctive relief"); *Paice*, 2006 WL 2385139, at *5; (stating that "infringing one's right to exclude alone, however, is insufficient to warrant injunctive relief"); *Finisar* (Hearing Tr. at 125:1–24) (finding that compulsory license will adequately compensate patent owner for future harm); *z4 Techs.*, 434 F. Supp. 2d at 441-42.

(3) Novozymes Has Not Met Its Burden to Show that the Balance of Hardship Tips in Its Favor

101. To obtain an injunction, a patentee "must demonstrate . . . that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted." *eBay*, 126 S. Ct. at 1839. As any injury Novozymes may suffer can be remedied by money damages, Novozymes has not shown it would suffer any hardships if its request for an injunction is denied. As such, it cannot show that the balance of hardships warrants a remedy in equity. *See, e.g.,*

Voda, 2006 WL 2570614, at *5-6 (denying a permanent injunction without reaching the balance of hardships because "plaintiff has failed to demonstrate either irreparable injury or that monetary damages are inadequate").

(4) The Public Interest Will Be Unduly Harmed if an Injunction Is Granted

102. To obtain an injunction, a patentee "must demonstrate . . . that the *public* interest would not be disserved by entry of a permanent injunction." *eBay*, 126 S. Ct. 1839 (emphasis added).

103. Here, Novozymes cannot meet its burden because the public interest would be disserved by a permanent injunction. Increasing production and use of fuel ethanol is important to the U.S. for many reasons including "[c]ontinued demand for less reliance on oil from the Mideast" and "environmental considerations." TE 353 at NV-0015346-48, A-16175–16177. However, NZNA is likely to raise the price of its alpha-amylase products if SPEZYME® Ethyl is taken off the market. *See* LeFebvre, Tr. (L) 622:12-24, A-6030:12-24; Faller, Tr. (D) 158:7-14, A-15157:7-14. Alpha-amylases play a "key role" in the fuel ethanol industry. *See* Meyer, Tr. (D) 36:3-7, A-15035:3-7. Thus, price increases of the Liquozyme Products would likely lead, in turn, to higher prices for fuel ethanol, something that would be at odds with the public interest of reducing U.S. reliance on foreign oil and increasing environmental protection. (GFF 19, 39.)

104. All the permanent injunction factors weigh against Novozymes, or are no better than neutral. Novozymes has not met its burden to establish entitlement to a permanent injunction, and its request for a permanent injunction is denied.

V. CONCLUSION/ORDER

Based on the findings and conclusions set forth above, judgment as to damages and other relief is to be entered as follows:

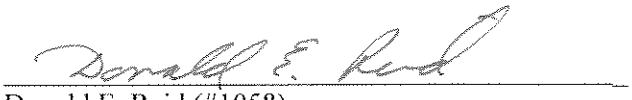
1. Novozymes' motion to add NZNA as a co-plaintiff is denied;

2. Novozymes is entitled to damages in the amount of $1,669,085 based on an 8% royalty, plus prejudgment interest;

3. Novozymes' motion for permanent injunction is denied; and

4. The parties bear their own costs and attorneys' fees of this action.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP



Donald E. Reid (#1058)
Jason A. Cincilla (#4232)
1201 North Market Street, 18th Floor
Wilmington, DE 19899-1347
Telephone: 302.658.9200
Facsimile: 302.658.3989

OF COUNSEL:

JONES DAY

Kenneth R. Adamo (*Pro Hac Vice*)
Tharan Gregory Lanier (*Pro Hac Vice*)
Jane L. Froyd (*Pro Hac Vice*)
2882 Sand Hill Road, Suite 240
Menlo Park, CA 94025

Thomas E. Friebel (*Pro Hac Vice*)
222 East 41st Street
New York, NY 10017-6702

December 8, 2006

CERTIFICATE OF SERVICE

I, Donald E. Reid, hereby certify that on the 8th day of December, 2006, Defendants' Proposed Findings Of Fact And Conclusions Of Law Regarding Damages Phase Of Trial was served by electronic filing or email upon counsel of record:

Andrew A. Lundgren, Esquire (alundgren@ycst.com)
Young Conaway Stargatt & Taylor LLP
1000 West Street
Wilmington, DE 19801

Samuel S. Woodley, Esquire (swoodley@darbylaw.com)
Robert C. Sullivan, Jr., Esquire (rsullivan@darbylaw.com)
Darby & Darby P.C.
805 Third Avenue, 27th Floor
New York, NY 10022

David K. Tellekson, Esquire (dtellekson@darbylaw.com)
Darby & Darby P.C.
1191 Second Avenue
Seattle, WA 98101

George Hykal, Esquire (ghykal@darbylaw.com)
Darby & Darby P.C.
803 3rd Avenue
New York, NY 10022

/s/ Donald E. Reid
Donald E. Reid (#1058)